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Eliza: THE  
BRITISH GARDENER'S  
New DIRECTOR,

Chiefly adapted to the  
Climate of the Northern Countries:  
DIRECTING  
The NECESSARY WORKS  
IN THE  
KITCHEN, FRUIT, and PLEASURE GARDENS,  
AND IN THE  
NURSERY, GREEN-HOUSE, and STOVE.

By Sir JAMES JUSTICE, Bart. F. R. S. and one  
of the principal CLERKS of SESSIONS in Scotland.

With the ADDITION of his DISSERTATION on the  
CULTURE of FOREST-TREES.

To this EDITION are prefixed

I. His TREATISE on Vegetation with *Directions* for making *Compost* for the more curious FLOWERS.

II. An Alphabetical List of Flower Seeds, directing to the Season of sowing them.

III. — of Flower Roots, with the Time of setting them.

IV. — of Seeds of Trees and Flowering Shrubs, with Directions.

V. — of Seeds for the im-

provement of Land.

VI. — of American Tree Seeds, shewing in what particular Manner they are to be sown.

VII. — of the most valuable Oriental single and semi-double Hyacinths, with Reference to their Botanical Names and Culture.

VIII. An Explanation of the Botanical Terms made use of in the Work.

ILLUSTRATED with COPPER PLATES.  
The FOURTH EDITION.

D U B L I N :

Printed at the REQUEST and RECOMMENDATION  
of several GENTLEMEN of this KINGDOM,  
By JOHN EXSHAW, in Dame-street. M.DCC.LXV.

B. Belcher 19 Apr / 98





THE  
PREFACE.

*I*N compliance with the general Custom which has made it necessary for every Author, who offers his Sentiments to the Public, to give a Reason why he addresses so respectable a Body, I shall in a few Words declare, that my Motives were the Love of my Country, and a Desire of communicating to its Members, the Advantage my Travels and my Pleasures have given me, in the particular Science I have treated of.

Our Situation not being so well adapted as other's to the Purposes of Vegetation, requires the Hand of Industry

## P R E F A C E.

*dustry and Experience to forward its Improvements, in both which I have been attentive: The latter has been extended to upwards of Twenty Years, in which Time, Diaries have been carefully kept, both for a future Consultation, and a Comparison with the present, for the quick Transition of our Seasons, and the abrupt Manner in which they visit us, require every Expedient to be taken, particularly when we attempt to transplant into our rougher Clime, the Natives of the more mild and serene, which, though attended with those Advantages, require Care and Art to forward them to perfection.*

*As some, who are not stimulated with the same Motives that engaged me in this Performance, may think I have, by directing the culture of the more common Things, departed from that Part of Gardening which should be the Entertainment of a Gentleman, give me leave to assure them, I have pleased in instructing the lowest of my Countrymen, nor has it been a Work unrewarded, when to my Knowledge they stand in Competition with those who have had more favourable Opportunities, I mean of being under Men of more extensive Knowledge, but not in a Climate that require so much Art and Industry to foil, owing to the variety and sharpness of the Seasons with which we are visited; by this, they have so far advantaged, as to excel in other Countries, and to be valued for their Knowledge in this Particular. Some neighbouring Places experience this unfavourable cast of Nature, with a Degree nearly approaching to our's, there they have been found*  
*most*

## P R E F A C E.

*most serviceable, and coveted for their Abilities in the Culture of what may be called rare as well as common.*

*I would not be supposed to have so limited a Conception, as to think that Merit does not rest elsewhere, this would be an ill Requital for the Kindness and Generosity, with which I have been treated in the different Countries I visited, whose Science has been chearfully communicated and enabled me to transplant a Treasure to my Country, and there to cultivate Things unattempted before.*

*I hope I shall be pardoned if I should mention, that these my Labours may not be unworthy the Attention of those, whose Countries and Clime approach in some Degree to Scotland, where the Seasons are sharp, attended with great Moistures, turbulent Winds, and chilling Blasts, from its Vicinity to the Western and Atlantic Oceans.*

*Mr. MILLER, of whom I must always retain the highest Sense, both for the Knowledge I have received from his Labours, and more particularly that Friendship and Communicativeness with which he always treated me, was blessed with a more favourable Situation in the Progress of his Experiments, by enjoying the kind Influence of the Sun, (the Parent of Vegetation) in so high a Degree, as to have the Vine in full ripeness on the natural*  
a 3 *Wall,*

## P R E F A C E.

*Wall, without the assistance of Art; and could we all experience the same Felicity, I need not have communicated my Observations, or my Countrymen wanted any other Tutor: But Providence in his Wisdom has directed it otherwise, by which the Ingenuity of Mankind has had Variety of Employ, and the Field of Invention so enlarged, as to excite their Industry, which otherwise would have been neglected.*

*The Composts I recommend have not been hastily taken up, but from an attentive Consultation with the best Florists, where each curious Flower enjoyed its natural Clime, and this further I have to add, that each Sort has been repeatedly used, and with a Success that must please every Lover of the Art.*

*I have subjoined a Treatise on the Culture of such Forest Trees as have been esteemed the most valuable; in it is given the Experience of much Labour and Expence, attended with many Disappointments, but in the End happily accomplished; and for the Satisfaction of Posterity let me assure them, they will not hazard their Success by implicitly giving up to my Directions, being the Result of Forty Years Experience, and of this the Woods and Plantations on my Demesne, shew how far the Practice is right.*

*In the course of these Directions, I may be thought to have been too minute, and even to have been guilty  
of*

## P R E F A C E.

*of some Repetitions, but in these I hope to be indulged, as it arose from the Manner of making my Entries, and a Desire of being intelligent to every Capacity. This in Time will have its Effect, and raise to us a number of mechanical Gardeners, so that Gentlemen will not be subject to, nor pestered with ignorant Pretenders, who have rendered abortive Plans that might have been as happily executed, as conceived with Propriety.*

*But not to trespass any longer on my Reader's Patience, I shall beg leave to conclude with an Observation of our great Master, That they that are Whole, need not the Physician.*

Edinburgh, September,  
1763.

THE

P R E F A C E

It is a pleasure to me to be able to  
present to the public a book which  
I have been so long in preparing.  
The book is a collection of  
the most interesting and valuable  
documents which I have been able to  
procure. It is a book which  
I hope will be found useful and  
interesting to all who read it.

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## O N

### VEGETATION, &c.

**T**HE most natural Introduction to a work of this kind, before we enter into particulars, is to consider the nature and qualities of Composts; that is, the meliorations necessary for different soils, in order to bring the various plants we intend to raise, to their greatest perfection.

*Earth*, according to the definition of the learned *Boerhave*, is a fossile body, neither dissoluble by fire, water, nor air: it is insipid, more fusible than stone, still friable, and usually containing a share of fatness in it.

*Mr. Boyle* says there is no such thing as a strictly simple Earth; and it doth not appear that nature, any more than art, affords an elementary Earth; those even of the simplest sorts, having been found, upon examination, to have qualities not ascribed to pure Earth.

Earths are of many and various qualities. Some are simple and immutable; such as Chalk, Pumice, and Rotten Stone.—Others are compound and fatty; of which kind are all Boles of the red, of the white and brown colours, Fuller's Earth, and divers kinds of Medicinal Earths, such as the *Terra Cretica*, *Hungarica*, *Lemnica*, &c. which Earths are all resolvable into oil, a little acid salt, and a *Calx*, which is the basis, or *Earth*, properly so called.

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*Sand*, is by naturalists, generally ranked as a species of Earth, though I think very improperly; for sand, strictly speaking, is a sort of chrystal, divided into small transparent pebbles, calcinable by the addition of a fixt alkaline salt, and becomes fusible and convertible into glass.

Earth is rendered fertile by means of sand, and becomes fit to feed and nourish vegetables, and vegetate; such Earth, by itself, is liable to coalesce into an hard coherent mass, and, while thus embodied, and as it were glued together, will be very unfit for the nourishment of plants: but where hard sands, (whose chrySTALLINE particles are indissoluble by water, and therefore always retain their pristine figures) are intermixed, they keep the pores of the Earth open, and render it in some measure organical, the juices thereby being easily conveyed, prepared, digested, circulated, and at length excerned and thrown off in the roots of plants.

Earth is made up of two parts; the first the containing part, *i. e.* the Body, Bed or Couch; the second, the part contained, *viz.* the Nitrous or Sulphureous Particles, or Prolific Salts. The first is but a lifeless mass, and is no more than the receptacle of the other, and when considered, simply abstracted from the prolific salts with which it is replenished, is a lifeless, dead, inanimate body; but when, by the co-operation of water, sun, and air, it is put into motion, it then promotes and carries on the work of vegetation.

*Vegetables* are natural bodies, organically formed, but without sensation or spontaneous motion, adhering to another body in such a manner as to draw from it its nourishment, and having power of propagating itself by seed.

By its consisting of vessels and juices, it is distinguished from a fossil; and differs from an animal by its adhering to another body, and deriving its nourishment therefrom.

*Vegetation* is the act whereby plants receive nourishment and grow; or rather that concurrence of acts  
betwixt

betwixt Vegetables and the Earth, properly compos'd by salts, and by the nitrous particles and effluvia of the Earth acting thereupon. As to the different vessels of plants, proper to receive, and to exsude the juices for their nourishment, it being foreign to my purpose, I shall not enter into a discussion thereof at this time, but return to what I first propos'd, *viz.* to consider the Composts of Ground, whereby Vegetation is promoted, and the proper nourishing juices more easily convey'd into the vessels of the Vegetables that are planted therein.

Composts are made up of several sorts of soils, or earthy matter, mixt together, to make a manure for assisting the natural Earths in the work of vegetation, by way of amendment or improvement.

Composts are various ; and ought to be different, according to the different qualities of the soils they are designed to meliorate. As a loose sand requires a Compost of a heavy nature ; so on the other hand, a soil that is heavy, clayey, or cloddy, requires a Compost of a more sprightly and fiery nature, apt to divide those clods and clay ; to animate and give fresh vigour to that lumpish and coherent mass, which would otherwise obstruct the act of vegetation ; and to give life and full play to all the fibres of the roots of such plants as grow therein. The principal use of Composts is for such plants as are preserved in pots or tubs, in green-houses and in stoves, and for small beds or borders of flower-gardens, or filling up boxes wherein the seeds of the choicest flowers are sown. To the making up of these I shall at present confine myself, as, in the progress of this work, I shall have many occasions to inform my readers of the different Composts proper to be used for large gardens, and the different plants that are there usually rais'd.

As I intend to treat of the proper Composts for all the different *genera* of flowers, I shall begin with those which make their appearance first in the Spring ; and shall insert the rest in their due order. The first considerable flower that makes its appearance in the

Spring, is the *Primrose* or *Primula Veris*. These are distinguished into two sorts; the *Primula Veris*, properly so called, which carries but one flower upon a stem; and the *Polyanthos Primula Veris*, which carries many flowers upon a stem. The Compost they require to prosper in, is thus made: to two thirds of rich Garden Earth, or rather Virgin Earth, (by Virgin Earth I mean that dug from under old pastures, nine inches deep, which was never spaded,) this, with the sod, is to be laid up in a heap for two years to rot, with one third of fine white Sand; if this cannot be had, sea Sand, over which the sea flows, will do: but you are to observe as to sea sand, that you are to lay it open to the sun and air two months before it is used, that its crude salts may be properly digested; which practice is proper not only in this, but in all cases where sand, over which the sea flows, is made use of; if neither sea Sand nor white Sand can be conveniently had, in that case pit Sand, or fresh river Sand may be taken. The before-mentioned proportions must in all cases be strictly observed, unless the soil is a clay. In this last case half sand and half clay must be taken; and the Compost must lie twelve months, and be turned up every fortnight, to attenuate and moulder the clay.

Before I proceed to give directions for Composts, it may be proper to take notice of the several dungs which are to be used to enrich and meliorate the different heaps, to be afterwards directed. Dungs in general are designed to repair the decays of exhausted or worn-out lands, and to cure the defects of lands, which are as various in their qualities as the dungs that are used to meliorate and restore them. Some lands are cold, moist and heavy; others again are light and dry. The nature of dungs are equally various; some are hot and light, as sheep's, horse's and pigeon's dung; others again are fat and cooling, such as the dung of oxen, of cows, and of hogs. Green dung is never to be used. It ought to lie by at least twelve months to rot; after which to be exposed to the sun; and when dry, beaten and sifted, and made into as fine  
a con-

a consistence as possible. This management of your dung is only necessary when you are to mix it with the Compost intended for the finest flowers; but dung properly rotted, although you are not at the expence of beating and sifting it, will serve all the purposes of the Kitchen Garden equally well.

The effects that are to be expected upon land by dung, must be according to the distempers they are to cure; the dung of oxen, cows, and hogs, must be given to clean, light, dry Earths, whilst hot and dry dungs must be given to meliorate cold, moist and heavy lands.

There are two peculiar properties in dungs; the one is to produce a certain sensible heat, capable of producing some considerable effect; this is found in the dung of horses and mules, which is a while moist when newly made, this dung when fermented we use for hot-beds, to produce early in the Spring those plants and fruits in perfection, which the rays of the sun naturally produce in the Summer: the other property of dung is to fatten the Earth, and render it more fruitful. The different operations of different dungs is therefore carefully to be attended to. To dry light Earth, give Cow's dung, to cool and enrich it; to heavy, sour, clay land, give Horse's, Mule's and Pigeon's dung, to dry meliorate, fatten, and divide those stubborn lands. These are general and certain maxims, handed down to us from former ages, and confirmed by our own experience.

I have premised thus much on the nature of dung, as it is one of the principal ingredients of Composts for the different flowers of the Spring.—I shall now proceed in my method to the other flowers, and the soils proper to bring them to the greatest perfection.

The second flower which adorns the Spring is the *Auricula*. The beautiful varieties which have been produced, and annually are produced, of these grand flowers, attract the eyes of the indifferent person, as well as of the Florist. The Compost to be used for them, in which they blow best, is made up in the following

following manner: to a cartful of good fresh Virgin Earth, add two loads of well rotted and well riddled cow's dung; but if your soil is stiff, cold, and clayish, the fourth part of it must be horse's dung; to these add a cartful of fine white sand, or of rough sand from a fresh river; after your different heaps are riddled and made fine, mix them in the precise proportions here mentioned, and they will be fit for use in six months, observing to toss them up every fortnight, that the different matter of which your heaps consist may be equally mixed; and this you are to be particularly attentive to.

The Compost used for *Hyacinths*, to bring them to their greatest perfection, being very different from what has hitherto been used, I shall be very particular in giving directions how it must be made up, which will lead me to consider a little more fully the different soils which are to be met with. This noble flower may properly be called a native of *Holland*, since, from the seeds gathered from plants which grew there, there have, within these fifty years, been raised upwards of eight hundred different sorts. To have them therefore in perfection in these Climates, we must imitate the *Dutch* soil as near as we can.

In *Holland* their natural soil is sand and moss, or a black rich fallow. The white sand there is naturally mixt, and makes a third part of this fallow; about two feet below this, there is a fattish substance always nourishing what is planted in it; and indeed there is no interruption of growth, nor want of a nourishing sap, during the whole year, except when their severe frosts prevent the agitating of the soil to forward vegetation.

One would imagine that plants would suffer in such ground, by being too wet below, and by the rains from above; but it is quite otherwise; the sand in the soil above, dries up the rains which fall, whilst the glutinous fat matter below is continually sending up its vegetative qualities; and in case the heat in Summer should parch what grows near the surface, quantities  
of

of cow's dung are used to cool the sandy surface. This dung, having this excellent quality, that, covered but with four inches of any sort of Earth, it will retain its moisture and moistening qualities in the hottest summers.

To make a soil therefore, equal in goodness to this, for *Hyacinths*, *Tulips*, *Ranunculus's*, and *Anemonies*, and to make them blow and increase the same way they do in *Holland*, is to most of our gardeners a thing unknown; but nothing is more certain than that we may imitate this fine *Dutch* soil; nay, we may have our soil as good as the *Dutch*; for, by carefully preparing the Compost in the manner prescribed, flowers have been brought to as great perfection as ever they were in *Holland*, and as few roots, if not fewer, have been lost in a season, than ever in proportion were lost in that country.

The soil that is composed of clay, (which is certain death to *Hyacinths*,) must be avoided, so that our choice must be of such, where the least of it is in the composition. The black, rich mould, and the mossy land, in which we abound, I shall give proper directions for meliorating: Having varieties of sands, and plenty of cow's dung. These materials being properly mixt, by length of time may be brought to become a mass of Earth as good for propogating *Hyacinths*, as that in *Holland*. Therefore, I proceed to give directions how the Black Earth is to be used, such at least as is the freest from clay, or its particles. There are two sorts of it; one which is mostly found in gardens, and another below the sod of pasture lands. If you use the garden sort, which is often cropt by the gardener, take a quantity of it nine inches deep below the surface; spread it out during a Winter and a Summer, to enjoy the benefits of the sun and air, in the best exposed part of your Compost-yard, which should be closely paved or flagged to prevent the liquid matter which is highly impregnated with the vegetative quality, from being lost, as not any thing contributes so much to the value of your Compost, as the frequent turning this liquid

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quid into the heap, while under preparation : If you take your earth from pasture land, go no deeper than nine inches ; take the sod along with it ; lay it out and expose it in the same manner for fifteen months before use ; but take care that the lower part of the sod be turned up to the sun, so as the grassy part thereof may be well rotted to mix with the earth ; which must be well riddled to take out the stones.

The White Sand, over which the sea flows, is very good for flowers, as it is animated with its saline effluvia ; but this must be cautiously used, as it is too salt for immediate use, and would be of dangerous consequence ; and should the proportion be lessened, it would not answer the purpose of dividing the particles properly. The best method is, to lay it in your Compost-yard for two months, in which time it will evaporate much of its crude salts, so as to be fit for use.

They have a sand in *Holland*, which is upon the hillocks of their pastures on the sea shore, this they dig for two or three feet deep, which is fat, glutinous, and brackish ; this they carry to their Compost-yards, and, after exposing it some time to the sun, they use it in their Composts. This is the very best Sand for all sorts of flowers. It divides the earth and dung effectually. It is very fine in its contexture ; and the salts it contains, promote Vegetation to admiration.

Where the Sand I have recommended is not to be had, we must use Pit or fresh River sand. Pit Sand, which is very often clayish, must be put into a vessel with water ; and washed until the water comes off clear, which must be exposed some time to the air and sun before it is fit to be mixed with your Compost. The River or Brook Sand, which has clayish particles often mixed with it, must be taken the same care of in washing and exposing to the sun and air, which will soon fit it for your Compost-heap ; and when you have planted your roots, should you observe that they do not vegetate nor blow as fast and as fair, as you could wish, to four cartfuls of your Compost, when properly made

made up, add ten pounds of salt, dissolved in water, which pour on the heap.

In the inland countries they have the advantage of moss, or mossy earth; which, when duly prepared, is very free, and, when enriched with proper manure, is one of the best soils for flowers, and is next in goodness for that purpose to what the *English* Florists call Woodpile Earth, and nearest in quality to the *Dutch* soil. To make this fit for use, use the following method of preparing it: before you lift it, pare off its surface, which is greenish by the growth of the plant properly called *Moss*; but observe, that the place from whence you take this ground be not immersed in water, or where water stands in the Summer-time; these grounds are sour, barren, and can never be mended by any culture whatever; but let the place, from whence you take your earth, be open, free, airy, and of a middle dryness, rich and buttery to the touch, but by no means clayish or stony; dig about twelve inches deep, and no further, and when you have got a sufficient quantity of it, bring it to your Compost-yard, spread it a-breadth, let it enjoy the sun and air in Summer, and the frosts for one Winter, tossing it up at every thaw; by this means it will be meliorated and divided; and after lying twelve months in this manner, it will then be fit to incorporate with the rest of your materials.

Of all dungs whatever, none is so proper for cultivating flowers as Cow's Dung; because a great deal of sand, (one third at least,) is necessary in most Composts for flowers of the bulbous kind; and sand being hot, it must have a manure to cool and fatten it; for which the Dung of Cows, Oxen, or Hogs, is the most proper. The method I use to make this Dung fine and fit for the purpose is thus: in *July*, *August*, and *September*, while the cows are at grass, and are fed with grass in byres in the night time, take out the Dung and lay it in your Compost-yard in small heaps, where it will probably heat; but this is not to be minded. In *November* and *December*, when the frosts are coming

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coming on, lay your dung a-breath over the pavement, six inches thick, and no more, to receive the benefit of the frost; for one month's frost will rot your dung more, and make it fitter for use than three months at any other time. When the frosts are intirely gone, lay your dung again up in heaps or ridges two or three feet thick; there to lie till the middle of *May*, when the hot weather begins to set in, then spread it thin, and beat it with a plaisterer's lime-beater, and riddle it very fine. The grosser particles however ought not to be flung away as they may be used in the Kitchen Garden to very good purpose.

Your dung thus dressed must then be put up into pretty large heaps, where should it heat, must lie until quite abated; and the Winter following must be spread out, for the advantage of the frost, and by Summer following it will be ready to put into your Compost heaps.

There is another manure, which is of very great use to the Florists; particularly for the many salts proper for vegetation it contains and requiring but one season for its preparation.

This is much used by the Florists in *Holland*, and when I was last there, I observed a gentleman's *Hyalcinths* in the highest perfection, which led me to enquire, what Compost he used, which was no other than one third of fine white down sand, one third of extremely well rotted cow's dung, and one third of rotted *leaves of trees*. This is the manure I shall now treat of, and shew the manner of preparing it, which every Florist should never be without.

Let the leaves of those trees and bushes which fall in the end of Autumn, be gathered and laid in your Compost-yard; which must be spread out, over which you lay your cow dung, then a layer of leaves, and another of cow dung, and so alternately until your heap is raised to 12 or 14 inches, but no higher: the sap and salts of the dung will, in one winter, intirely rot your leaves, so that, in *April* there will not be the least appearance of them.

Having thus given directions for preparing your sand, cow's dung, leaves of trees, and the kinds of different earth

earth to be used, I proceed to give their proportions. To a load of what sand you can procure, after it is prepared agreeable to the foregoing direction, take two loads of cow's dung, in which the leaves of trees have been rotted, and the whole sifted and made fine, together with one load of fine riddled and prepared earth either of the mossy kind, or of the black earth, I before described, but by no means such as have any particles of clay. This mixture should be prepared in May, by turning it up every three weeks; but should it heat when in an heap, do not stir it until the heating is over, and should you perceive any mouldiness on opening the heap, spread it out for the advantage of the sun and air, which will soon recover it, (observing always to keep your Compost free from weeds) then it must be again made up into an heap, and the September following put it into your *Hyacinth* beds, whose culture you will find treated of under their respective heads.

The Compost for your *Hyacinths* should be changed every year, which will not be attended with any loss, as it will answer very well for your *Tulip* beds, adding to it a fourth more of sand, especially if you plant your *Tulips* the next year after your *Hyacinths*, observing to lay your compost in ridges for the advantage of the sun and air, a fortnight before planting; and the following year you may plant your *Ranunculus*, *Anemonies*, and *Iris*, especially that sort well known in the Dutch Catalogue, by the name of *Iris Anglica Bulbosa*, of which the Dutch have raised many uncommon beauties, and this compost after it has answered the purpose of raising your most curious flowers, let it be again laid in the Compost-yard, to sweeten and meliorate for more ordinary uses.

In laying out your *Kitchen Garden*, the following instructions will be necessary to be attended to, according to the soils with which you engage; if your Garden is rocky or gravelly, you are to bring from a rich pasture good loamy earth, laying it in heaps from five to three feet deep. The soil which you take from the pasture ground, should not be taken deeper than nine inches

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inches, or a foot, and to be laid in heaps for a twelve month to rot, before laid on the ground. If your soil is clayish, strong and stiff, it will be necessary to plough or dig it three or four times, giving it a cross-ploughing with a good deep furrow, and should you be under a necessity of having some summer crops in the quarters, lay up their soil in ridges the preceding winter to be meliorated by the frost and snow. The best manure for such a soil is sea-coal ashes, the cleansing of streets, and horse-dung, but where these are wanting, sea-sand may be used with great advantage, observing that your crops will be proportioned to your quantity of sand, as it divides the clayey particles and the salt enriching the soil; but on the contrary should your situation be on a hot, sandy soil, not any manure more proper than the dung of cows and oxen. Marle, when suffered to lie a twelvemonth on the surface, and afterwards ploughed or dug into the soil, will be of great service. Thus I have given what knowledge I have obtained from experience, (my only guide) of the different soils and composts for the Gardeners, and if properly attended to, with the other directions in the following Piece, I flatter myself I shall be remembered with esteem, and considered by the *Amateur* an useful Member to Society.

An Alphabetical List of Flower Seeds, and Roots, Seeds of Trees and Flowering Shrubs, Seeds for the improvement of Land, with a Collection of American Tree Seeds, directing to the Season of planting them, and the particular Manner they are to be treated ; and a List in Alphabetical Order of the most curious Oriental Hyacinths, with reference to their Culture, &c.

N. B Where the Letter h. is added, directs to be raised on Hot-beds ; b. h. in Boxes to be placed in the Hot-bed ; b. in Boxes ; op. in the open Ground ; and p. in Pots.

FLOWER SEEDS.

Amaranthoides white, h.	March and April.
— purple, h.	March and April.
Amaranthus Cockscornb, h.	March and April.
— Globe, h.	March.
— Purpureus,	April.
— Tree,	April.
— Tricolor, h.	March and April.
Apple Love, h.	March.
After China, double,	April.
—, single,	April.
Auricula,	November, Jan. and Feb.
Balsam, double stript, h.	March and April.
Beans, the scarlet flowering,	February and April.
Bell-flower, Canterbury,	April.
Bottle-flower, or Cyanus,	August and March.
Campion Rose,	March.
Candy-tuft, white,	March.
—, purple,	March.
Canterbury Bell-flower,	April.
Capficum Indicum, many Kinds, h. }	April.
Carnation, Dutch,	April.
—, English,	April.
—, French,	April.
—, Indian Lupines,	March.
—, Poppy, with several other sorts, }	April.
Catchfly, Lobel's,	April.
China After, double,	April.

China

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China Aster, single,	<i>April.</i>
——, Mallow, h.	<i>March.</i>
Chrysanthemum, double,	<i>March.</i>
Cockscomb Amaranthus, h.	<i>March and April.</i>
Columbine, Virginian,	<i>July and March.</i>
Convulvulus Major, scarlet,	<i>March and April.</i>
—— Minor, do.	<i>March.</i>
—— Major, blue,	<i>March.</i>
—— Minor, do.	<i>April.</i>
Cyanus, or Bottle-flower,	<i>August and March.</i>
Diamond Ficoides, h.	<i>April.</i>
Dutch Carnation,	<i>April.</i>
English Carnation,	<i>April.</i>
Everlasting Pease,	<i>April.</i>
Flos Adonis,	<i>August and March.</i>
French Carnation,	<i>April.</i>
Globe Amaranthus, h.	<i>March.</i>
Greek Valerian,	<i>March.</i>
Hawkweed, crimson, h.	<i>March.</i>
Holyhock, double,	<i>April.</i>
Honesty or Moonwort,	<i>March.</i>
Honeysuckle, French,	<i>March.</i>
Humble Plant, h.	<i>April.</i>
Indian Lupines, carnation,	<i>April.</i>
——, great blue,	<i>April.</i>
Indian Pink, h.	<i>April.</i>
Larkheel, double, with many colours,	<i>August and March.</i>
Lavatera, red,	<i>March.</i>
——, white,	<i>March.</i>
Lobel's Catchfly,	<i>March.</i>
Love Apple, h.	<i>March.</i>
Love-lies-bleeding,	<i>March.</i>
Lupines, carnation Indian,	<i>April.</i>
——, great blue do.	<i>April.</i>
——, small blue,	<i>March.</i>
——, yellow,	<i>March.</i>
——, great scarlet,	<i>March.</i>
——, white,	<i>April.</i>
Lychnis, scarlet,	<i>April.</i>
Mallow Tree,	<i>March.</i>

Mallow

Mallow, China, h.	<i>March.</i>
Marvel of Peru, h.	<i>March.</i>
Marygold, sweet-scented,	<i>April.</i>
—, French,	<i>April.</i>
—, African,	<i>April.</i>
—, Quild,	<i>April.</i>
—, Campvere,	<i>March.</i>
Melongena, or Egg Plant, h.	<i>March.</i>
Mignonet, or sweet Resida,	<i>March and April.</i>
Moonworth, or Honefty,	<i>March.</i>
Moth-mullin,	<i>March.</i>
Nigella Romana,	<i>April.</i>
Pasque Flower, or Pulsatilla,	<i>April.</i>
Pease, everlasting,	<i>April.</i>
—, painted Lady,	<i>March.</i>
—, purple, sweet-scented,	<i>April.</i>
—, scarlet flowering,	<i>March.</i>
—, white sweet-scented,	<i>April.</i>
—, Tiangier,	<i>April.</i>
Perficaria,	<i>September and March.</i>
Pink, Dutch, double,	<i>April.</i>
—, Indian, h.	<i>April.</i>
—, Pheasant Eye,	<i>March.</i>
Plant, Sensitive, h.	<i>March.</i>
—, Humble, h.	<i>April.</i>
Polyanthus,	<i>August, Feb. and March.</i>
Poppy, Carnation, with fundry other sorts,	<i>April.</i>
Princes-feather,	<i>March.</i>
Pulsatilla, or Pasque Flower,	<i>April.</i>
Purple sweet-scented Pease,	<i>April.</i>
— Candy-tuft,	<i>March.</i>
Romana Nigella,	<i>April.</i>
Rose Campion,	<i>March.</i>
Scarlet flowering Pea,	<i>March.</i>
— — — — Bean,	<i>February and April.</i>
Sensitive Plant, h.	<i>March.</i>
Snap-dragon,	<i>March.</i>
Stock-jillyflower, Brumpton,	<i>April and July,</i>
—, Queen,	<i>April and July.</i>
—, stript,	<i>April and June.</i>
—, purple.	<i>April and June.</i>

Stock-

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Stock-jillyflower, white, } with sundry other sorts, }	<i>April.</i>
Stript Balsam, double, h.	<i>March and April.</i>
Sultan, sweet,	<i>April.</i>
——, yellow, h.	<i>April.</i>
Sunflower, double,	<i>March.</i>
Sweet Scabius,	<i>April.</i>
—— Sultan, yellow, h.	<i>April.</i>
—— William,	<i>March and August.</i>
Tangier Pease,	<i>April.</i>
Tree Mallow,	<i>March.</i>
Valerian, Greek,	<i>March.</i>
Venus' Looking-glass,	<i>March.</i>
Virginian Columbine,	<i>July and March.</i>
Wallflower, white,	<i>April.</i>
——, bloody,	<i>April.</i>
White Candy-tuft,	<i>March.</i>
—— sweet scented Pea,	<i>March.</i>
Xeranthemum, purple,	<i>August and September.</i>

FLOWER ROOTS.

Anemonies, many sorts,	<i>October, January and Feb.</i>
Hyacinths, double, many } Colours, }	{ <i>October, November and December.</i>
Jonquils, double,	<i>October and November.</i>
Iris, Persian,	<i>October and November.</i>
Italian Tuberoses, h.	<i>March, April and May,</i>
Persian Iris,	<i>October and November.</i>
Polyanthus Narcissus, ma- } ny sorts, }	<i>October and November.</i>
Ranunculus, many sorts,	<i>October, January and Feb.</i>
Snow Drops, double,	<i>October, and November.</i>
Tuberoses, Italian, h.	<i>March, April and May.</i>
Tulips, many sorts,	<i>October and November.</i>

SEEDS

# CATALOGUE of TREE SEEDS, &c. xvii

## SEEDS of TREES and FLOWERING SHRUBS.

Acorns, great Oak, when } ripe, or in	<i>February and March.</i>
—, Evergreen,	<i>March.</i>
Arbutus, or Strawberry } Tree, b.	<i>March.</i>
After Pine,	<i>March.</i>
Balm of Gilead Fir,	<i>March and April.</i>
Beech Mast,	<i>October, November and Feb.</i>
Birch,	<i>March.</i>
Bladder Sena, or Collutea, b.	<i>March.</i>
Broom, Spanish,	<i>March.</i>
Cedar of Lebanon, b.	<i>March and April.</i>
Chestnut, Horse,	<i>February and March.</i>
—, sweet,	<i>February and March.</i>
Collutea, or Bladder Sena, b.	<i>March and April.</i>
Crab Kernels,	<i>February and March.</i>
Cypress Fir, b.	<i>March.</i>
Elm,	<i>June.</i>
Evergreen Acorns,	<i>March.</i>
Fir, Cyprus, b.	<i>March.</i>
—, red Scots,	<i>March, April and May.</i>
—, Silver,	<i>March.</i>
—, Spruce, or Pitch,	<i>March.</i>
Hawberries,	<i>February.</i>
Holly do.	<i>February.</i>
Hornbeam,	<i>September, October and Feb.</i>
Horse Chestnut,	<i>February and March.</i>
Laburnum,	<i>March.</i>
Larix, b.	<i>April.</i>
Lime Tree Berries,	<i>May.</i>
Pine, New England,	<i>March and April.</i>
Pine, After,	<i>March.</i>
— great,	<i>March.</i>
Pitch, or Spruce Fir,	<i>March.</i>
Pyracantha,	<i>February and March.</i>
Scots red Fir,	<i>March, April and May.</i>
Silver Fir,	<i>March.</i>
Spanish Broom,	<i>March.</i>
Spruce Fir, or Pitch,	<i>March.</i>
Sweet Chestnuts,	<i>February and March.</i>
Walnuts,	<i>February and March.</i>
Yew Berries,	<i>September, October and Feb.</i>

# xviii CATALOGUE of *American* TREE SEEDS.

## SEEDS for improving LAND.

Buck Wheat,	<i>April and May.</i>
Canary Seed,	<i>April.</i>
Clover, great red English,	<i>April and May.</i>
—, great red Dutch,	<i>April and May.</i>
—, white Dwarf Dutch,	<i>April, May and August.</i>
—, yellow or Trefoil,	<i>May.</i>
Dutch great red Clover,	<i>April and May.</i>
— dwarf white Clover	<i>April, May and August.</i>
English great red Clover,	<i>April and May.</i>
— Rye-grafs,	<i>April and May.</i>
French Furz,	<i>March and April.</i>
Hemp Seed,	<i>June and July.</i>
Irish Whins,	<i>March.</i>
La Lucerne,	<i>April and May.</i>
Lint Seed,	<i>April and May.</i>
Maw Seed,	<i>May.</i>
Rape Seed,	<i>June and July.</i>
Rye Grafs, English,	<i>April and May.</i>
—, Scots,	<i>April and May.</i>
Saint Foin,	<i>April.</i>
Scots Rye Grafs,	<i>April and May.</i>
Trefoil, or yellow Clover,	<i>May.</i>
Wheat Buck,	<i>April and May.</i>
Whins, Irish,	<i>March.</i>
White Dwarf Dutch Clover,	<i>April, May and August.</i>
Yellow Clover, or Trefoil,	<i>May.</i>

## *American* TREE SEEDS to be sown in the *Spring*.

Alder, American, op.	Aralia Spinosa, or Tree
—, silver leaved, op.	Angelica, b. h.
—, Virginian, op.	Arbor Lotus, op.
Alternate two and three leav-	Arborescens Seneas, h.
ed Pine, op.	Ash-leaved Maple, op.
American, narrow leaved	—, black, op.
Thorn, op.	—, white, op.
American Alder, op.	Beam, Hophorn, op.
Andromeda, broad leaved,	Beech Sumach, b.
or flowering Sorrel Tree,	—, Virginia, op.
b. h.	Benjamin Tree, b.
—, red budded, b. h.	Birch, the sweet black, op.
	Birch

# CATALOGUE of *American* TREE SEEDS. xix

- Birch, Popler leaved, op.
- Black Champion Oak, op.
- Dwarf Oak, op.
- Larix, b.
- Mulberry, op.
- round Walnut, op.
- Spruce Fir, b.
- BoggyChameradodendron, b.
- Bread, St. John's, or Honey  
Loney, b. h.
- Broad-leaved Andromeda, or  
flowering Sorrel Tree, b. h.
- , Mountain Elm, op.
- , Viburnum, op.
- Button Tree, or Cephalan-  
thus, b.
- Cedar, red, b.
- , white, b.
- Cephalanthus, or Button  
Tree, b.
- Chameradodendron Boggy, b.
- , great, b.
- , Ivy, b.
- , Olive-leaved, b.
- , Thyme leaved, b.
- Champion Oak, the Bastard,  
op.
- , black, op.
- , great,
- Chestnut Virginian Oak, op.
- , Swamp Oak.
- Clethra, with beautiful flow-  
ering Spikes, b. h.
- Cluster Cherry, op.
- Cornelian Cherry, or white  
Berried Cornus, op.
- Cornus, great red Mountain,  
op.
- Culmina, red flowering, b.
- , white flowering, b.
- Dogwood, b.
- Downy Sumach, b.
- Dwarf, black Oak, op.
- , Prince of the Defart, b.
- , scarlet Oak, op.
- Elm, broad leaved Mountain,  
op.
- Evergreen Euonymus, op.
- Privet, op.
- Rhamnus, b.
- Shrub Hypericum, b.
- Euonymus, Scandens, op.
- , great broad leaved,  
op.
- Fir, Virginian Silver, op.
- , black Spruce, b.
- Fringe, or Snow-drop Tree,  
b. h.
- Great broad leaved Euony-  
mus, op.
- Chamerododendron, b.
- Champion Oak, op.
- red Mountain Cornus,  
op.
- Silver-leaved Maple, op.
- Gum, the sweet, b.
- Honey Loney, or St. John's  
Bread, b. h.
- Hophorn Beam, op.
- Hypericum evergreen Shrub,  
b.
- Jersey Pine, the rough, op.
- Tea, b.
- Itea, b. h.
- Judas Tree, b.
- Ivy Chamerodendron, b.
- Larix, black, b.
- Lesser Spanish Oak, op.
- Linden, op.
- Locust, sweet smelling, b. h.
- Long white Walnut, op.
- Lotus Arbor, op.
- Magnolia, b. h.
- Maple, Ash leaved, op.
- , great Silver leaved, op.
- , Dwarf Mountain, op.

## XX CATALOGUE of *American* TREE SEEDS.

- Maple, stript, op.  
 —, Sugar, b.  
 —, Virginian, op.  
 Minor Zanthoxilum, b. h.  
 Mountain Elm, broad-leaved,  
 op.  
 Mulberry, black, op.  
 Myrtle, Virginian, b.  
 Oak, black Ash, op.  
 —, black Champion, op.  
 —, black Dwarf, op.  
 —, Bastard Champion, op.  
 —, great Champion, op.  
 —, lesser Spanish, op.  
 —, shrubby white, op.  
 —, scarlet Dwarf, op.  
 —, Spanish Swamp, op.  
 —, Swamp Chesnut, op.  
 —, Virginian Chesnut, op.  
 —, white, op.  
 —, Willow, op.  
 Olive-leaved Chamerododen-  
 dron, b.  
 Papaw, b. h.  
 Pine Alternate, two and three  
 leaved, op.  
 —, the Dwarf of the Defart,  
 b.  
 —, two and three leaved  
 Swamp, op.  
 —, rough Jersey, op.  
 Poplar-leaved Birch, op.  
 Prinos, b.  
 Privet, evergreen, op.  
 Red budded Andromida,  
 b. h.  
 — Cedar, b.  
 — flowering Culmia, b.  
 — four fruited Viburnum, b.  
 Rhamus, evergreen, b.  
 Rose Marsh, op.  
 —, sweet Mountain, b.  
 Rough Jersey Pine, op.  
 Round black Walnut, op.  
 Sassafras, b.  
 St. John's Honey Loney, b. h.  
 Scarlet Dwarf Oak, op.  
 Seneas Arborescens, h.  
 Serrated-leaved Viburnum, b.  
 Shrub, the evergreen Hype-  
 ricum, op.  
 Shrubby white Oak, b.  
 Silver leaved Alder, op.  
 — Fir, Virginian, op.  
 Snow-drop Tree, or Fringe,  
 b. h.  
 Sorrel Tree, the flowering or  
 broad leaved Andromeda,  
 b. h.  
 Spanish lesser Oak, op.  
 Spiney Viburnum, b.  
 Spinosa, Aratia, or Tree An-  
 gelica, b. h.  
 Spirca, purple, b.  
 — Opula Folio, b.  
 — white, b.  
 Spruce Fir, black, b.  
 Stript Maple, op.  
 Sumach, Beech, b.  
 —, Downey, b.  
 —, Virginian, b.  
 —, or Tupelo, h.  
 Swamp Pine, the three leav-  
 ed, op.  
 —, Chesnut Oak, op.  
 —, Spanish Oak, op.  
 Sweet black Birch, op.  
 Sweet Gum, b.  
 — Mountain Rose, b.  
 — smelling Locust, b. h.  
 — Service early, b.  
 Tea, Jersey, b.  
 Three leaved Swamp Pine,  
 op.  
 Thorn, narrow leaved Ame-  
 rica, op.  
 Toxicodendron

# CATALOGUE of *American* TREE SEEDS. xxi

Toxicodendron foliis pendu-  
lis, b.

—— trifolium, b.

Tree Angelica, or Aralia Spi-  
nosa, b. h.

——, Benjamin, b.

——, Button, or Cephalan-  
thus, b.

——, Judas, b.

Tulip Tree, b. h.

Viburnum, broad leaved, op.

——, red four fruited, b.

——, round leaved, b.

——, ferrated leaved, b.

——, Spiney, b.

Virginian Alder, op.

—— Beech, op.

—— Sumach, b.

—— Silver Fir, op.

Walnut Hicory, op.

——, long white, op.

——, round black, op.

White Ash, op.

—— Berryed Cornus, or

Cornelian Cherry, op.

—— Cedar, b.

—— Oak, op.

—— Oak, shrubby, b.

Willow Oak, op.

Zanthoxilum minor, b. h.



*An Explanation of the Authors Names, and Abbreviations made use of in the Dutch Catalogue, of Flowers, Botanically explained, beginning in Page 316.*

**T**ournef. is *Institutions of Botany*, by *Joseph Pitton Tournefort*, printed at *Paris* 1716, *Quarto*.

C. B. is *asper Baubinus* his *Prodromus* to his *Theatre of Plants*, printed at *Bafil* 1671, *Quarto*.

C. B. P. is *Caspar Baubinus* his *Pinax* to his *Theatre of Plants*, printed at *Bafil* 1671, *Quarto*.

H. Cliff. is *Hortus Cliffortianus*, or a *Catalogue of the Garden of Plants at Hartechamp*, belonging to Mr. *George Clifford* of *Amsterdam*, ranged according to the new method of the *Sexes of Plants*, by Dr. *Charles Linnæus*, Professor of Botany at *Upsal* in *Sweden*, printed at *Amsterdam* in *Folio*, 1736, with elegant *Figures*.

Boerb. Ind. is an *Index of the Plants growing in the Physic Garden at Leyden*, by Dr. *Herman Boerhaave*, printed at *Leyden*, 1719, in *Quarto*.

Lugd. is a general *History of Plants*, by *Dalechamp*, printed at *Lyons* 1586, two Vols. in *Folio*.

J. B. An universal *History of Plants*, by *John Baubinus*, in three Vols. *Folio*, printed at *Embrun*, 1650.

Inst. R. H. is *Ray's History of Plants*, *London* printed 1704, in three Vols. *Folio*.

Hort. Lugd. Bat. is *Hortus Lugduni-Bataavorum*, or a *Catalogue of rare Plants*, which are growing in the *Physic Garden at Leyden*, printed in *Octavo* at *Leyden*, 1695.

Tournef. Coroll. is a *Corallary to the institutions of Botany*, by *Joseph Pitton Tournefort*, printed at *Paris* 1703, *Quarto*.

Boerb. Ind. alt. is the second Part of *Boerhaave's Index of the Plants growing in the Physic Garden at Leyden*.

H. C. is the *Hortus Catholicus*, i. e. the universal *Garden*, by *Franciscus Cupani*, printed at *Naples* 1696, *Quarto*.

Mor. Hist. is an universal *History of Plants*, by *Robert Morison*, printed at *Oxford* 1699, in three Vols. *Folio*.

Tabern. is *Icons of Plants*, by *Tabernæ-montanus*, printed at *Francfort* 1590, *Folio*.

Martin. Hist. is *John Martin* Professor of Botany in *Cambridge*, his *Decades of rare Plants*.

Germ. Emac. is *Gerard's History of Plants*, improved by *Thomas Johnston*, printed at *London* 1633, *Folio*.

H. Eyst.

xxiv *Explanation of AUTHOR'S Names, &c.*

*H. Eyst.* is *Hortus Eystenttensis*, by *Basilius Besler*, printed at *Norimberg* 1618, *Folio*.

*Hort. Cathar.* is the *Hortus Catharticus*, printed at *Amsterdam*, 1695.

*Morison. Histoïr. Ting.* is *Morison's History of African Plants*.

*Hort. Amst.* is the *History of rare Plants*, which are growing in the *Physic Garden at Amsterdam*, by *Caspar and John Comelines*, printed at *Amsterdam*, in two Vols. *Folio*, 1701.

*Hort. Elth.* is *Hortus Elthamensis*, or a *Description of rare Plants* which were growing in the *Gardens at Eltham*, as they are classed by *Dr. John James Dillenius* in two Vols. *Folio*, with *Figures*, printed at *London*, 1732.

*Raii Hist.* is *Ray's History of Plants*, printed at *London* 1704, three Vols. *Folio*.

*Clus. Hist.* is *Charles Clusius's History of rare Plants*, printed at *Antwerp* 1605, *Folio*.

*H. R. P.* is a *Catalogue of the Plants growing in the Royal Gardens at Paris*, printed at *Paris* 1665, *Folio*.

*Park. Theat. Bot.* is the *Theatre of Plants* by *John Parkinson*, printed at *London* 1640, *Folio*.

*Pluck. Phyt.* is *Plucknet's Phytographia*, i. e. a *Delineation of Plants*, printed at *London* 1692, *Folio*.

*Bocconi rar. Plant.* is *Figures and Descriptions of rare Plants*, observed by *Paul Bocconi* in *Sicily*, and printed at *Oxford*, 1674, in *Quarto*.

*The Italian Method of cultivating BROCOLI and FENOCHIO, communicated by the Lord Bishop of Killala, to the Dublin Society.*

**I**N the decrease of the Moon the latter end of *May*, or beginning of *June*, prepare a bed of fine rich light mould, well cleaned from stones or gross pieces of earth: Then water it well the day before the seed is to be sown, which must be done with a light scattering hand, to leave sufficient room that the young plants may not incumber each other in their growth: Work the seed gently into the earth with a fine rake, and stick feathers or something over the beds to keep the birds from picking it; in case of a dry season water them morning and evening for fifteen days, and after that time every other day for eight or ten days more, and when they are grown to the height of a quarter of a yard which will be in about six or seven weeks, they must be taken up seperately one by one, and transplanted into another bed of fine fresh mould prepared like the former, with this additional difference, that holes must be made in it about the size of the crown of a hat in the form of a bason, at a foot and a half distance; in each hole must be set a single plant, putting with it two large handfuls of sheeps dung, filling up the rest of the hole with fine mould, as observed in making cucumber holes: They must be watered morning and evening for eight or ten days, and afterwards every other day as the season requires, till they seem in perfect health: There is nothing afterwards to be done, but now and then raising the earth up about the roots; in about five or six weeks the flower will be fit to cut, which is known by its closeness and hardness as well as the extreme beauty of the colour, having a purplish bloom like that on grapes: They never cut above nine or ten inches from the top, because from the stalk shoots out fresh sprouts which are cut from time to time; those designed for seed are never cut at all, but suffered to grow till the seed is fit to gather, which they know by cropping a bit and squeezing it hard betwixt the finger and thumb, if the seed shoots out it is fit to gather and must hang in the Sun to harden; if it does not fly from the husk but bruise in the squeezing, they leave it growing till it will.

These directions I received from a very ingenious Gentleman who resides at *Rome*, and has done so some years;  
d
the

xxvi Italian *Method of cultivating* BROCOLI, &c.

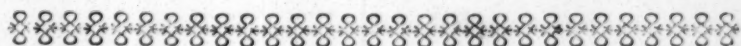
the same method is exactly used in *Italy*, except the season of planting, which is there in *August*, and upon many nice experiments of the difference of the heat of their climates he fixed on the end of *May*, or beginning of *June*, as most proper for this part of the world: This method was first tried at *Paris* by a very curious person with very great success, since I have followed it with great exactness notwithstanding great opposition from my Gardener, and a world of faults found by persons who pretended to skill, and have had all the success imaginable, the *Brocoli* being larger, sweeter, tenderer and in much greater quantity than ever I saw any where else, besides the having the flower frequently as large as a small *Collyflower*, which is uncommon in *England*.

I always let the Gardeners do some their own way, and observed what they sowed early in the spring was apt to seed and run away in hot weather; what they sowed in autumn the frost came so soon upon it, that the growth was stunted, and the plants often quite destroyed, and the best they ever produced were no better than common *Sprouts*.

*Fenocchio* should be managed after the same method, only sowed a fortnight later, being extremely apt to run, and great care taken to earth it up in the same manner you do *Celeri*: Our *English* Gardeners rarely taking care to put the earth high enough in blanching.



# PRACTICAL INSTRUCTIONS I N G A R D E N I N G.



## PART FIRST.

*Of the Kitchen-garden, the Fruits therein, and of the Culture of Kitchen-herbs and Roots.*

**T**HE choice of a proper and convenient situation, is the first thing to be considered in laying out a kitchen-garden. The common, and indeed most eligible, situation, is, to have it very near, the stables and cow-house, for the convenience of wheeling in dung, which, if at a distance from the garden, often proves very inconvenient. All kitchen-gardens ought to be walled in. Their figures in general are either regular squares, or oblongs; the last ought to be preferred, provided their length be from East to West, not from South to North, for the benefit of the ripening influence of the sun, for the fruits upon the South and South-east walls. It should not only be walled in, but plantations of firs should be planted at the distance of 200 yards from the walls, upon the North, the East, and West sides of the garden. For a small family, two acres of ground will do;

B

but

but if for a great family, it should be six or eight acres, with a large basin, or reservoir of water in the middle, or South-end of it, which may, if the proprietor pleases, be so large as to contain fish of several sorts. Water for a garden is absolutely necessary. Well-water is far from being proper; but pond-water, impregnated by the sun's rays, conduces greatly to vegetation. The garden should be well exposed to the sun, and not overshadowed with fruit trees; not any fruit trees whatever should be planted in the quarters, as they cover the ground in a few years, and choak every plant under them. There may be fruit enough upon the espaliers, with which the quarters of the garden are surrounded, to furnish any family: as the more delicate fruits grow upon the walls. If the ground slopes a little to the South, so much the better; for the upper and best exposed part will be fit for early crops, and the under or lower for the late crops.

One great article to be considered is the soil, which should be neither too wet nor too dry, but of a middling nature; nor should it be too strong or stubborn, but of a pliable nature, and easy to work: If the soil is strong, it will be necessary to plow or dig it three or four times, and to lay the soil up in ridges in the winter season, before you plant any thing in it; which does it great service, by meliorating and dividing its coherent parts. The best manure for such a soil is coal-ashes, and the cleaning of streets or ditches, which will make it light, sooner than any other dung or manure whatever; and the more ashes the better, especially if the ground is cold. Where these manures are wanting, sea sand, or rotten wood, are used for the improving stiff soils. On the other hand, if the soil of your kitchen garden is sandy, and of a hot nature, no manure is so proper as cows dung, or marl well dissolved, by laying it above the surface of the earth for 12 months, and afterwards plowing or digging it down when you observe it dissolved in its grossest particles. Horse dung will not do, as it will burn and destroy the  
crops,

crops, upon their first appearance. The soil of the garden should be two and a half, or three feet deep, which depth is absolutely requisite to bring to perfection most esculent plants, such as carrots, parsnips, French turnips, beer-raves, and many others, which send their roots far below the surface of the ground.

If you think that you have too little walling, especially of that part which looks to the South, or one or two points to the East, you may divide your garden, with one or two walls thro' the middle of it, according to the size and extent of your ground. These walls should look South, or one or two points to the East, running from East to West the whole length of the garden, with an opening in the middle, the breadth of the middle walk, and openings at each end, the breadth of the walk at the side wall of the garden. The walk in the middle ought to be double the breadth of those on the sides; which last have generally a border equal to their breadth.

According to the situation and exposure you make choice of for your walls, the ground within is to be disposed of; and consequently the walk in the middle, the cross walks, the espaliers of fruit trees, and the borders upon which gooseberries and currants are planted through the quarters of the kitchen ground, must all run in lines parallel to the position of the walls.

The best exposure of walls in this country, is South, with one or near two points to the East, to have the advantage of the morning sun; and that notwithstanding the objections of many persons, who say, that by turning them the least point to the East, the fruit will suffer by blighting; but, from my own experience, I have found more blighting upon a South or South-west wall, than I ever saw on walls turned one or two points to the East of due South; and I am convinced, that the benefit of the morning rays of the sun, together with this exposure, being better preserved from the South-west, and West winds, which are very prejudicial to fruit in this country, does more than compensate any loss, (if any there is) from blighting. In a

situation near the Eastern sea-coasts, I should chuse a due South situation for my best walls, because East winds, from the vicinity of the great Eastern ocean, are really dangerous to all fruits. But in a situation more remote from the sea, I should make choice of the first situation here prescribed.

Having thus formed your wall at the head of your garden, looking South, and with one or two points to the East, this wall must direct the position of the other walls. If the ground is to be laid out, either in a regular square, or in an oblong, then the West and East walls must form right angles at their joining with this South-aspected wall, and must run parallel to one another, and must again form right angles when joining to, or near to joining with, the wall at the South-end of the garden. I begin with the walls, as they are the outlines, properly speaking, of a garden. Many persons have built walls at a great expence in angles, and semicircles, to accelerate the ripening of their fruit, and to meliorate its taste when ripened; and some have been at great charges in building arches in the lower parts of the walls, to give full scope to the roots of trees to run into the earth, and to give them space to spread every where. As to the first, of building circular, or angular walls, I must beg leave to say, that instead of the benefit intended, they in general have the quite contrary effect; for whenever the wind beats upon semicircular or angular walls, it is reverberated with great force upon the trees; the air is made colder, and the fruit is thereby made later in ripening, and becomes ill-tasted: And as to the other method, of arching their walls at their bottoms, that is still worse; for when the roots go out at the backsides of the walls at their freedom, they draw all the rancid juices from the earth at the backs of the walls, which infallibly makes the fruit fall off, after it has acquired its magnitude, and is so superabundantly furnished with undigested sap, that it cannot ripen even by the hottest rays of the sun, and therefore continues a globe of undigested matter, which defeats all kindly ripening. This, by  
experience,

experience, I have often found to be the fate of our new experiments upon wall fruits so injudiciously managed. For which reason, I would advise the building of plain walls, either of brick or stone, or of stone lined with brick, as they shall most suit the convenience and taste of the proprietors. In this country, where brick is scarce and dear, and our winds are very strong, I would propose the building of walls in a method I have practised with extraordinary success.

The first wall I would build, is that fronting the South, upon the North of the kitchen garden. This wall I would chuse to have for forcing vines, which, without artificial heat, will not ripen in this country. This wall is more proper for that purpose than the wall or walls which pass through the middle of the garden, as it prevents entirely the rubbish, which would unavoidably be the case, were the middle wall a hot wall, as the fuel and ashes, and shades over the furnaces, would both incommode and look unseemly, in a place where pleasure and good taste should be the sole objects to be regarded. It is for this reason that I would fix upon this Northmost wall for a hot-wall. It should be placed 150 feet on each side of a large gate in the middle of the wall, which gate must be twenty feet broad, corresponding to the breadth of the middle walk through the garden; and as I write here of a grand design, this plan may be suited to smaller gardens of this kind, in their respective proportions. But as in this garden, 300 feet of hot walling is mentioned, it supposes, that one hundred feet of the hot wall is every year employed, whilst the other 200 feet are at rest to recruit; for continual forcing of one and the same space of walls will never do; the trees by this management will become sickly and weak, and at length bear no crops; whereas, when they are forced for two years, and have three years to rest and recover, they will return to their former vigour for bearing plentiful crops of good fruit. Nor would I force early vines. These vines which are late, best tasted, and which bear the largest and best bunches of grapes, and which agree

best with forcing, should only be the objects of my care and culture in the forcing method of ripening fruits.

In the structure of these walls, there are some particulars to be observed with exactness, without which success cannot be expected.

The foundation of these walls should be four feet deep in the ground, built of good stone and lime, and three feet broad at bottom, to be carried to the same thickness to half a foot above the surface of the ground, and that in order to support the vacuity of the flues above, otherways a less breadth of foundation might make the flues settle unequally, and so spoil the design. At the height of half a foot above the surface of the ground must be the first flue, that there may be no damp, either below, or by the side of the flue, and that the earth in this border may not dry too much, by the flues being below the top of the border; the depth of this flue should be two feet and a half, the breadth one foot, and be covered with two rows of bricks made on purpose, of 15 inches long, and of the ordinary breadth. The advantage of having two rows of bricks, is, that the iron hooks which hold and support the trelace, to which the branches of the vines must be fixed, are firmer when they have two ranges of bricks to hold by, than when they have but one. The trelace projects three inches from the wall, and these hooks must be fixed in the back-wall, and must be laid close under the brick-rows that cover the flues, and not across them, for this would greatly hinder and stop the brooms from cleansing the flues from soot. In the back of the flue there must be one brick thickness joined neatly to the back of the wall, which is of stone, and which needs be no thicker now than two feet, and carried up the same thickness to the top of the wall, that it may the better cast the heat forwards. The front of the flue, should only be an ordinary brick's thickness, or four inches; and the flues within, and without, on the sides, tops, and bottoms, should be as neatly plastered with a kind of plaster which will bear heat, and as smooth as possible, that there may be free vent for the smoke,

smoke, and that no soot at cleaning may rest in the flues.

The second flue should be two feet deep; the third, one foot and a half; and the fourth one foot; whereby these flues and their covers will rise to be altogether near ten feet high, and one or two feet of a topping whereon the timber should be placed, and six inches under which the top glasses should run, and be covered thereby, that the rain may run off and not fall under the glasses. These flues should lie one above another, rising three inches at the contrary ends to that where the smoke enters, for their better drawing and venting: the plaister should cover the iron hooks entirely within the flues, that they may be quite smooth within, that no soot may hang on them, and the hooks may be put three feet one from another; but it will be necessary to make them strong to support the trellace from the top of the first flue, and so on in the tops of all the four flues; over these flues on the outside, it will be convenient to lay on two coats of strong plaister of the most durable kind; because, when the walls are not at work, it must be exposed to the weather, which may deface it, or break it, and thereby the smoke may come out that way, which ought carefully to be prevented; for this reason it must at first be made very strong, as it must be exposed to all weathers long before it is fit to be used; and the hardest and most substantial stucco makes the best plaister for this or any such purpose. I would also advise some small arches to be made in the back-wall, in such a manner that there may be holes to admit brooms to clean the flues of soot when they are stoppt, which will be better than to clean them in front, whereby damage might be done to the trees upon the walls.

I have spoke pretty fully concerning the disposition of the hooks which are fixed in the wall for sustaining the trellace; but there is another method whereby it may be fixed, without hooks in the wall, for if any of these happen to break or to quit their hold, to fix them again, occasions great confusion: This is, an iron large  
trellace,

trelace, in which there are hooks fixed for the support of the wooden trelace, the upright bars at ten feet distance from one another, and the cross bars to run parallel with the top of every flue; these uprights may be fixed at the top and bottom of the wall; and the cross bars, which contain the hooks for support of the wooden trelace, must be fixed to the uprights at each end of the walls. If you chuse to have this last mentioned strong iron trelace to support that of wood, then you need only one brick-cover for your flues. I would not however desire, that the wooden trelace should be made sooner than the third year after planting of the vines, so that they may be fastened to it about a year, before they are forced. Nor would I make the glass frames sooner; but the flues, hooks, or the iron trelace and its hooks, must be erected with the wall and flues; as also the ovens for the flues and their shades, of which I shall now treat.

These ovens must be made on the back-sides of the walls. One large oven can warm forty feet of walling, and no more; and as there is 150 feet of hot-wall upon each side of the great gate above proposed, so there must be four ovens on each side of the gate, that is eight ovens in all.

The whole of this oven or furnace should be erected at the back of the wall, and not in the fore part as is done in the stoves for pine apples or other plants, for there will be heat enough from the flues for all the purposes here designed. The oven should be twenty-eight inches deep, and twenty inches square at bottom, but may be sloped off on all sides, so as to be two feet, or twenty-six inches square at the top, which should be near equal in height to the entrance into the first flue, for the better draught of the smoke into the flues. The furnace should be all built of brick, and covered at top with large rounding bricks, closely joined and cemented with hot cows dung, yellow loam, good lime, and sand, all mixed together. The furnace and flues must be very smoothly plaistered within with this composition, that no smoke may pass out  
that

that way, but all go into the flues. Under the ovens should be a place for the ashes to fall into, which ought to be one foot deep, and as wide as the bottom of the oven; this ash-hole should have an iron door, in a frame of iron, to shut as close as possible; and just over it, and above the bars which support the fuel, there should be a square hole, about four inches wide, to let in air to make the fire burn. This small hole must also have an iron door in an iron frame, to shut close when the fire is quitelighted, which will make the fire last longer, and make the heat more moderate; and near the top of the oven must be the large iron door, also in a frame, for admitting the fuel into the furnace, and this may be of a foot or more square. The door of this hole must also be made to shut close, that all the heat may be within the furnace, and from thence pass totally into the flues.

Over these furnaces there must be shades built of stone and lime, covered either with tiles or slates; their breadth should be eight feet, and their length more or less, as you have one or more ovens in them; and as there are 150 feet of walling on each side of the great gate, it will be necessary to have four ovens on each side also, that is, two under one shade, and two under another; the length of the two oven-shade should be twelve feet, and the length of the other shade should be twelve also; these shades must have three steps to go down, because the doors of the ovens being low, and the tops below the first flue at least six inches, it will require that descent to go down to put the fuel into them. The doors of the shades should be at one end, and not opposite to the doors of the ovens, as such a position of the doors would make the fires in the ovens burn too fast.

Having finished your wall, flues, ovens and shades, and fastened the hooks on the great iron trelace above mentioned, you are to lay out a border of five feet wide, which will make a sufficient declivity for the glasses; on the outside of these borders, build a low wall three feet deep below the surface of the border,  
and

and four inches high above the same, upon which the case of timber should be laid, whereon the sloping glasses are to rest. This wall will keep up the earth in the borders, as also preserve the wood and lower part of the frames, which hold the glasses, from rotting; but in carrying up these front walls, it will be necessary to leave, at every eight feet distance, little openings to let the water pass off, lest the moisture being confined at bottom, should be pent up and corrupt, which will be of very bad consequence to the plants in the border. After these walls are thoroughly dry and seasoned, the trench should be filled up (if for vines) with stony lime rubbish, and a sandy chalkish or lime rubbish soil, a foot and a half thick, which should be levelled and beaten down pretty hard; and above this soil should be laid one foot and a half deep of fresh virgin soil, which will be a sufficient depth of earth for the roots of the vines; but if for peaches, nectarines, apricocks, plumbs, or cherries, then there must be laid in this trench, or border, some such earth, three feet deep, as shall be prescribed for these fruits hereafter in treating of them; but on hot-walls I would chuse to have no other fruits than vines, for it is not equal to the expence and trouble to have peaches, cherries, &c. However the proprietor may choose for himself. I shall give proper directions, consistent with my experience, for both.

I proceed to the planting and cultivating the vines until they are fit to be forced, which cannot be expected with success until they are four years planted, when they will have acquired strength to endure the artificial heat: and then, and not till then, I would make my frames, glasses, and the high wooden trelaces, all which must be well painted for enduring, and should be made of good well-seasoned fir, which is better than any other timber. The ground in the borders being prepared, and put in as directed, six weeks before the vines are planted, that it may have time to settle, I would plant the following sorts only:

1. The

1. The white Chasselas, or Royal Musca- } early.  
dine.
2. The black Chasselas, or Black Musca- }  
dine.
3. Red Muscadine.
4. The White Frontiniac.
5. The Red Frontiniac.
6. The Damask Grape.
7. The Raisin Grape.
8. The Malmsey Grape.
9. The Red *Hamburg* Grape.
10. The White Muscat, or Frontiniac of *Alexandria*.
11. The Red Muscat, or Frontiniac of *Alexandria*.
12. The Alicant red Grape.

These are the best Grapes, either for hot-walls, or in the field; but as few or none of our grapes arrive at any perfection without some artificial heat applied, I would advise hot-walls for all here mentioned. Vines are, for the most part, either propagated from layers, or from cuttings: The first method is generally followed, tho' most erroneously, except where those layers are planted into pots; but even altho' they are planted into pots, and their roots thereby, may be better preserved, yet I would prefer good cuttings to layers, for this reason, that vine-roots do not grow so strong and woody as other fruit-trees, but are soft and spongy, and are very apt to break and bruise; so that, when they come to be planted in that condition, especially if they are kept out of the ground any time, it rather retards than forwards their striking root; if they are in pots, their roots may thereby be kept whole, but then they may be dried to powder, which has much the same effect; for which reason I would chuse always the cuttings of the vines, and those, in their passage from *London*, or even from *France*, will keep good for four months, if they are properly packed, and carefully taken off from the mother-tree, in the manner I shall here direct; and I would give more  
for

for a good cutting skilfully managed and taken off, than I would do for a rooted plant at any time.

The best season, to take off the cuttings, is about the beginning of *November*, and from that to the end of *January*. When they arrive here, I would lay them in a dry sandy or rubbifhy border, by a South wall, tho' not too near it, in some well exposed place, covering them with earth half way up the cuttings, laying mulch or straw upon them to defend them from all frost and too much wet; but in mild weather take off the straw, and give them air. When the cuttings are to be taken off, such shoots only as are strong and well ripened, of the last year's growth, ought to be taken; these should be cut from the old vines just below the place where they were produced, taking off, with the cutting, a good knot of the two years old wood, which, if to be immediately planted, should be pruned smooth; but if to be sent to any distance, the pruning this under-knot may be left undone, until the cuttings are to be planted, or ten days before it; then cut off the upper part of the shoot, so as to leave the cutting fourteen inches long. In making the cuttings in this manner, there can be but one taken from each shoot; but then this under part of the shoot is far better ripened, and will make a much stronger plant, than where the whole shoot is cut into lengths of one foot or less, and all these lengths are planted, a practice used by many unskilful persons. When the cuttings are thus prepared, they may be packed up with dry moss in a box; but when you have got them, use them as I directed above, until the season of planting, which is in the first or second week of *April*; but I would have the whole shoot to be sent, and not to be shortened till the planting season; for I find that the whole cutting, to the length perhaps of three feet, being put up, and after they come to your hands, being laid in the earth until they are to be planted, is the best method to preserve the cuttings.

Having prepared your border, after the walls have been thoroughly dried in the manner above directed, take your cuttings, and after having, eight or ten days  
before

before planting, smoothed the knot of two years old wood, which is left at the lower end of the shoot, wash the cuttings from any filth they may have contracted, and if they are dry, lay their lower parts in water for ten or twelve hours, which will distend their vessels, and prepare them for striking roots; open the holes about six feet distance, and fourteen inches deep; put two cuttings therein a little sloping, but in such a manner as not to touch or cross each other; and if both cuttings succeed, one of them may be taken out the following Spring; then fill the holes with earth, and press it gently down with your foot close to the cuttings, and raise it about, like a hillock, 'till they have no more above the surface of the earth than their uppermost eye; for were more eyes above the ground, they would all prepare to shoot, which will hinder the cutting from rooting, and spend its strength in endeavouring to push several, when one shoot is sufficient; then lay some mulch or straw on the surface of the ground, to prevent the sun and air from too much drying the earth; and if the Spring should prove very dry, they should have water once a-week; but be sure to keep the border quite clear from all weeds, until the cuttings begin to shoot, at which time they should be carefully looked over, to rub off any dangling shoots, if such are produced, and to fasten the main shoot to any part which is most commodious of the great iron trelace; or if that trelace is not erected, to any small trelace supported by the hooks in the wall; and this main shoot must be constantly fastened as it extends in length, that it may not break or hang down. If the Summer is very hot, cover your plants from eleven in the forenoon till two in the afternoon.

If your cuttings have produced strong shoots at *Michaelmas*, prune them down in dry weather to two eyes, but by no means delay this work until the Spring, for by such delay, the young shoot or shoots, if two upon one plant are admitted to grow, will be apt to decay at the extremity of the shoot during the winter, which is often of bad consequence afterwards to the whole plant.

If

If the weather is severe in the winter, lay a little mulch or haulm over the roots of the young cuttings, to protect them from severe frosts, but always remove it in open mild weather. In *April*, dig up the borders gently, but so as not to hurt the roots of the vines, and raise the earth up to the stems of the plants, to cover the old wood, but yet so deep as to cover either of the eyes of the last year's wood; and be sure at this time to take off all suckers, if any should appear, from the roots of the vines, nothing being more prejudicial to them, or more useless for propagating them, though some persons practise this injudiciously. They will require no further care until they begin to shoot, when they should be carefully looked over, and all weak dangling shoots rubbed off, leaving no more than the two shoots which are produced from the two eyes of the last year's wood, which should be fastened to the wall; and so from this time, until the vines have done shooting, you should look them over once every three weeks, to rub off all side-shoots as they are produced, and to train up the two main shoots to the trellace of iron, or some small rods fixed in the iron hooks, as they grow in length; but by the end of *July*, pinch off their tops, which will strengthen all the eyes and wood below, and be sure to keep them quite clear from all weeds. At *Michaelmas*, if the shoots of this year's growth are strong, shorten them to three eyes, laying the two outmost branches horizontally from the main stem, if they can bear such a position without breaking them; and in *April* following, dig the borders as in the former year.

The third season you must go over the vines again, as soon as they begin to shoot, rubbing off the dangling small branches and buds, which are produced at the sides, but not at the eyes of the old wood, and train in the leading shoots, which this season may be supposed to be two, from each shoot of the last year's wood; but if they attempt to produce two shoots from one eye, rub off the weakest, for there should never be  
more

more than one shoot allowed to come out of one eye; and if any of the vines produce fruit this year, as some of them will do, you should not stop the shoots, upon which the fruit is, so soon as is by some practised, but permit them to shoot forward until the beginning of *July*, at which time you may pinch off their tops; by which means the shoots and their buds will be fully ripened, to send out good wood for the subsequent year, which must be carefully preserved in young vines, because there are no shoots laid in on purpose for wood, as is practised in the management of old vines; and be sure to keep the ground quite free from all weeds. And as the fruit of this year, being the first of their bearing, will be but small in quantity, I should choose rather to divest them of it, in order to encourage the wood, from the goodness and maturity of which we are to expect a good crop, when the vines are to be forced.

The fourth year's management of the vines, if you do not force them until the fifth year, is much the same as the third year. I shall therefore proceed to give directions as to the autumnal pruning before they are forced in the Spring, the making the trelaces, and the glass frames, and the management when the heat of the fire is applied to them.

I would choose to put up the trelace for the vines in the beginning of the fourth year of the growth of the vines, that they may be trained thereto one year before forcing, and by that means all the branches may be laid in due and proper order, as greater regard is now to be had for the fruit than for the wood. These trelaces may be erected so as to hold by hooks, which project two, or at most three inches from the wall, as I mentioned before, or by the great iron trelace, and may be so interlaced therewith, as to make one whole trelace. These which are designed for vines, should have their rails eight inches from one another, cross and length-ways. The woodwork should be made of fir well painted for endurance, and should be well nailed, to sustain the frame of the whole trelace.

lace. To these bars of the trellace, the shoots of the vines should be fastened as they grow, with rope-yarn, or other soft binding, so that every shoot may have its due and regular position, and that there may be no crossing or interlacing of the shoots at any rate. When we come to force the vines every shoot should be pruned for fruit, and not for wood. This pruning should be early in the preceding Autumn, that the buds which are left on the shoots may receive all possible nourishment from the vine; and the shoots should be then fastened to the trellace in the order they are to lye.

The glasses and frame should not be placed before the vines until the middle of *February*. These frames and glasses I am now to describe. The frame should be made fifty feet long, as there will be annually fifty feet of walling, upon each side of the big gate, to be forced; or if you think fifty feet is too much or too great a length of walling to force with one fire, then you may force only forty feet of walling, which one fire, without any doubt, will sufficiently warm, for this first experiment, until you be ascertained of your fires working, and what length of walling it will give good heat to. These frames should be so contrived as to shift and be lifted every year, or once in two years, as you observe the vines to prosper best with one or two years forcing, without intermitting; but never force vines above two years, without suffering them to rest and recover themselves. Fir is the best wood for frames, and if made strong and substantial, and well oiled and painted, will last longer than any other sort of wood whatever. Upon the low walls, in front of the borders, the great plate of timber should be laid, whereon the sloping glasses are to rest: These glasses must be divided into two ranges; for as they must reach from the timber-plate fixed in the low wall above the level of the border, to almost the top of the wall, they will be near twelve feet in length, and would be too long for single frames, which are too heavy to move if they are longer than six feet, especially if the  
frames

frames are made of solid work to sustain the glass. They should be contrived in such a manner as the upper row may slide down, and by making on each side three small holes in the wooden supporters at about one foot distance, and having good iron pins to fix into them, the top-glasses may thereby be let down, one, two, three feet, or more, as occasion serves; and the lower row of glasses may also be contrived to take out easily, or to run up below the upper glasses, when you are to give air to the under part of the frame, which is better than taking the lower glasses altogether out; and altho' the upper range of glasses are above the lower glasses, yet there may be separate grooves made for them, to run quite down to the lower part of the frame, without bearing upon the lower glasses; which lower range of glasses may also have separate grooves to receive them, when they are to run under the upper range of glasses; but there is not often occasion to run up the lower range of glasses, as it is better to let the air in at the top, than at the bottom of the trees or vines, until the grapes are well formed, for at that season you must give air to all in mild weather.

The sloping timbers which support the glass-frames should be fastened at bottom into the plate of timber on the top of the low wall on the front of the border, and also at the top of the flued wall, by strong iron cramps fixed there for that purpose. These timbers must be made of fir, and should be made very strong, more thick than broad, that their breadth may not hinder the rays of the sun from reaching the vines: On the top of these should be fixed a strong board all along the frame, under which the upper part of the glasses should run, to secure the glasses from being raised by the wind; and it should be well plaistered with lime above, that no wet get in that way; it should also project six inches over the glass frames, which will be breadth enough to throw the wet on the glasses, and to keep them firm.

The breadth of the frames for the glasses should be three feet three inches, and may be divided into as ma-

ny as the fifty or forty feet wall in length will admit of ; the upper glass frames should be exactly of the same dimensions of breadth, and the bars of these frames which support the glass should be placed lengthways ; but by no means should any cross bars be there, which would cause the moisture on the insides of the glasses to fall in drops upon the borders of the trees, which will be very injurious to them, especially when they are in blossom ; and as at each end of this frame, there will be an angular space betwixt the glasses and the wall, this must be closely stopped up, that no air may get in. For the greater convenience, I would have also glass-frames, or rather windows, which may be contrived so as to let in fresh air to the plants and fruits, especially when the wind beats so much on the front of the frame, that it would be improper to open any of the front glasses.—And here I cannot omit to observe one particular with respect to vines upon hot-walls, that they should be always planted by themselves, and should not be planted amongst other fruits, such as cherries, plums, peaches, &c. because they require more air when they begin to shoot than other fruits do ; and the soil proper for vines, seldom or ever agrees with these fruits. I shall afterwards treat of the forcing these fruits, whereby, in the North parts of *Britain*, we may have some of the richest peaches in *France* every year in perfection at no great expence. But to return ; if the fires for the vine hot-walls are lighted in the second week in *February*, the vines will begin to shoot the latter end of *March*, which will be near two months before they begin to spring in the open ground, by which means the grapes will ripen perfectly well. The degree of heat must be regulated by one of Mr. *Fowler's* or Mr. *Cole's* botanical thermometers, wherein the spirit of wine should never be raised higher than five degrees above the point *Temperate*, and if it is kept to *Temperate*, or five degrees below it, there will be enough of heat ; for if you warm the air more, it will draw the shoots of the vines too much, and disappoint you of a good crop : The fires should not be continued

tinued when the sun shines, but only in cold cloudy days : A moderate fire made every evening, and continued till ten or eleven o'clock at night, will heat the wall and warm the air sufficiently.

When the vines begin to shoot, they must be often looked over, to rub off all dangles, and to fasten the new shoots to the trellace. When the vines are in blossom, watch all opportunities to give them air, for upon good management at this season entirely depends your crop of grapes, and particularly observe to water the borders of the hot-walls, in the afternoons after the sun is off the frames, with water that has stood within the frames twenty-four hours before you use it. It is then proper, gently to water the ground in the borders where the vines grow, which will, especially at this time, be of great service to them. These shoots should be carefully handled, and laid as near as possible, at equal distances, that they may enjoy all the benefits of sun and air, without which they will not thrive. When the grapes are fully formed, the shoots should be stopt at the second or third joint above the fruit, that the fruit may be nourished, and no useless shoots be encouraged ; which, in forced vines, (as I said before) are useless, until those years wherein the vines rest to recover themselves ; at that time, if your vines shall show fruit, take it all off, for in resting seasons you are to regard the wood only.

As the weather becomes warm, there must be a good quantity of free air admitted to the vines every day, which is most necessary for the swelling of the fruit ; but at the same time, the glasses should be close shut every night, otherways the cold dews will retard the growth of the fruit ; but in some hot sultry nights they may be quite exposed to the weather.

Some of the bunches of those grapes, after they are quite formed, will appear very thick and close on the stalks, which, when they come to their proper size, would entirely prevent their ripening. It will therefore be very fit, when the fruit is young, to cut off some of the smallest with narrow pointed scissars ; by which

means what you leave will ripen equally, and appear tightly. By the second week in *July*, the grapes will be full grown, at which time the glasses may be kept quite off, unless the season proves cold and wet; then the glasses must be kept on every night, but in the day-time they may be kept off, because the fine taste of the fruit is owing to a portion of free air that is given them. In *August*, however, the glasses should be kept on all the night, that the dews and the morning colds may not retard the ripening of the fruit. The grapes, when ripe, will often be preyed upon by their two great enemies, birds and wasps; the remedies for the first are nets and bird-lime, put upon twigs fastened to the rail; and when these thieves are caught by the nets or the bird-lime, let the bodies of the malefactors remain hanging there, to terrify their comrades by their fate; to destroy the wasps, hang glass-vials upon the trellace half full of honey water, into which, by the attracting smell of the honey, they will go in, and meet their fate by drowning.

The grapes, thus forced, will ripen early in *September*, especially the Frontiniacs; but not any of them all should be gathered before they are quite ripe, as the chief design of forcing is to have the grapes in perfection, rather than to have them early.

At the time of the ripening of the fruits, neglect no favourable opportunity to admit free air, because, at this season, nightly damps arise, whereby the fruits might catch a moulding; and for such grapes as do not ripen till late in *October* and *November*, it will be very proper to light some gentle fires in the evenings, to hasten the late fruit, and prevent all damps whatever from injuring the others now in their perfection.

Having thus described the hot-walls, and all their requisites, for cultivating the best sorts of grapes, and which may be made greater or smaller as it suits the proprietor; I shall proceed to give some directions concerning the management of some of the best sorts of  
peaches

peaches and nectarines ; which, to obtain a perfection of ripeness, may be forced every year. So soon as these trees have attained strength enough to bear plentifully, the trench formerly mentioned, which is in the front of the flued wall, may be contrived for this purpose, in the same manner as for vines ; as may the glasses, and every other material, except the trellace, which should be closer (five inches betwixt wood and wood for peaches being sufficient) The space betwixt the trench and the low wall upon which the frame and its glasses rest, should be filled three feet deep, and no more, with a good middling soil, in which may be put some yellowish marle, which compost should lye ten months, to rot the sward and sweeten ; and if the soil below is wet, throw in lime-rubbish one foot deep below the three feet of good earth to drain the moisture ; if it is dry, that lime-rubbish may be forborn : And it will be proper that the low wall in front for peaches should be five feet and a half from the wall, and the same way built, with openings, and every other thing as formerly directed.

The peaches I would recommend for these walls, are such as ripen, or endeavour to ripen late in our climate, whereby they may be brought in early, and have all their natural good qualities in perfection. They are,

- 1 The Violet Peach.
- 2 *Portugal* Peach.
- 3 The Nivette.
- 4 Pavie Royale.
- 5 L'Admirable.
- 6 Pavie rouge de Pompone, or Monstrous Pavie.
- 7 Catherine Peach.
- 8 Malacotton Peach.
- 9 Bloody Peach, or Sanguinole.
- 10 The Bellgarde.
- 11 The Bourdine.

And the sorts of Nectarines are :

- 1 Red Roman.
- 2 Temple's.
- 3 Golden.
- 4 Peterborough.

In order to manage these trees properly by thermometers, the thermometers should be taken down from the situations where they are hung in the day, during the least sunshine; for half an hour's sunshine would too much rarify the spirit of wine; and upon a wall, where peaches and nectarines are planted, the warmth in the air should be kept up to five degrees below the point Temperate in Mr. *Fowler's* botanical thermometer. These trees should be very early pruned, in Autumn, and all small wood taken out, and the large branches pruned short; nor should any fires be applied to them until the end of *February*; and when the fruit is set and visibly swelling, which may be about the 20th of *May*, the glasses, or canvas (if you use that on the frames instead of glass) should be removed, and their fruits and shoots exposed to the open air, for these fruits and shoots to ripen, and the succeeding year's buds to form. Thus your trees may be forced annually, without doing them injury, if they are carefully and judiciously managed. The borders whereon the peaches and nectarines in these frames grow, as well as those which are planted upon walls where there are no forcing frames, should be dunged every second, or at least every third year, with well rotted cows-dung, if the earth is sandy, or with well rotted horse-dung, if the soil is clay. Although many persons object to this dunging of the borders whereon peaches grow, yet I saw it practised at *Montreuil* in the North, and at *Aix* in *Provence* in the South of *France*, by gardeners who made it their business, and had the best peaches in all that country; the dung they used was very well rotted before they laid it upon the borders, which was in the beginning of

*Novem-*

*November*, only spading it gently into the ground, that the Winter rains might wash down its salts to the roots of the trees: To say, that the fruit will be ill tasted by dunging in this manner, is, I am sure by experience, a mere fable. As to the forcing of early fruit in this country, as it will give no price suitable to the expence and trouble, I would never advise it; and as for these walls, instead of glass upon the frames, I would rather prefer oiled paper, or oiled and painted canvas, either of which will do. From the walls, if the weather is warm, all covers may be taken away about the middle or end of *June*, when the fruit thus treated, should be as big as those upon ordinary walls of the same kinds the middle of *July*; for to accelerate these fruits so as to ripen in *August*, or early in *September*, is what is only wanted by such management, which otherways cannot be attained.

Thus I have given my practice and opinion of the building hot-walls for vines and some other fruits, which may be thus, and no otherways, brought to perfection in our Northern climate, when they arrive at a proper age and strength to bear such treatment.

And here I shall surely meet with cavil from my readers, and from practitioners also: Thus will they say, What can this author mean? He soars too high in his directions, and his practice too: This garden and his hot-walls, and other finesses upon our practice, will never do for kitchen-gardeners, gentlemen, or even our nobility; they are only fit for those of refined taste, and princely fortunes; and consequently are far less for the purpose of apprentices, &c.

Suffer me to answer these objections, which I shall do in very few words. This treatise will, no doubt, come into the hands of persons of all ranks, the rich and the poor; those of opulent, as well as of middling fortunes, the master, as well as his apprentices, journeymen, and day-labourers. Persons may choose to have hot-walls, hot-beds, pine apple stoves, flowers of the finest, as well as those of the most common sorts. Every person who reads this book, cannot  
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for many reasons, have every thing here prescribed or treated of ; and therefore, as he who chuses to have the nicest fruits and flowers here described, will find a method laid down, whereby his taste may be satisfied ; so he who does not, nor cannot possibly have them, is also hereby directed to have a good pleasant garden, without those high embellishments and improvements upon nature and our Northern climate. Here a good kitchen-gardener may find his account, as may the apprentices and journeymen, who by excelling, may be preferred to the service of persons of the best estates, and most refined taste. I write in general, and as far as I could, I have adapted this book to persons of high, middling, and low fortunes, as well for the kitchen-gardeners, who earn their bread by their daily labours, and by bringing to market their fruits and herbs in their respective seasons for sale, as for persons of higher rank and fortune. A kitchen-garden containing six or eight acres, may appear too large for any family. But sure I am, that there are families in *Scotland* which do require such gardens, more especially as the taste of eating espalier fruit prevails more than having large useless orchards of fruit-trees, where nothing but those trees can grow ; whereas, by the modern method of planting espaliers of fruit-trees, to surround the quarters of the kitchen-garden, they not only adorn and beautify it, but a garden, thus espalier-planted, serves at the same time both for an orchard and a kitchen-garden : Whereas, formerly, twice the quantity of ground was taken up by having an orchard exclusive of the kitchen-garden. Besides, my plan and designs may at pleasure be lessened, and adapted to the taste of persons who choose to have but one or two acres of kitchen-garden ground ; and there are few gentlemen at any distance from towns who have less garden ground than one or two acres. Altho' I describe hot-walls, and give the method of building them, and the culture of the trees wherewith I would choose to have them planted ; I neither say, nor think, that every kitchen-garden must have hot-walls, or other finesses

nesses of this taste. On the contrary, I think that there are, and may be many very good kitchen-gardens which have no hot-walls, no pine-apple stoves, and even no hot-beds at all. As I said before, I write upon a general plan of instructing my countrymen in gardening. I write not for the particular instruction or taste of any person whatever. And as I treat of walls, which are the out lines of a kitchen-garden, I could not omit to embellish them with what is nice and pretty, as well as with what is useful, elegant and profitable.

But to return to our present subject of walls. There are some persons who build their hot-walls with one whole continued chasm from top to bottom, so as they have appeared to be double walls, with places at proper distances to make the fires; but this is a very wrong method. For if there are vents at the top to suffer the smoke to go out, the heat will escape out also; and if the smoke is not led three or four times about in flues to warm the bricks, and the air within the glasses, the heat will soon pass off at the top without being of service to the trees upon the walls, and consequently the fuel, and all pains and expences, will be in vain, and expended to no purpose.

At each side of the hot-walls, there will, in the length, be space enough for other fruits (besides those fruit-trees which are forced) to be planted, such as peaches, plums, cherries, nectarines: But I should always think it proper to have fruit-trees of one kind planted near to one another, such as peaches, nectarines, plums, figs, and especially cherries, by themselves; for no other fruit will grow or prosper under the drop of cherry-trees, which makes me disapprove of the method commonly used of planting standard cherry-trees, to fill the upper part of a wall, where the dwarf, or low trees of any other kinds of fruit are planted; because, by their drops, they are enemies to every other sort of fruit. If this method will be followed, let standard cherries fill the upper parts of a wall planted with dwarf cherries, but no others upon a wall planted with dwarf peaches, nectarines, or plums. Plant  
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the interstices, to fill the upper parts of such walls with standard plums, or peaches, which may be had from the nursery-men, or with standard almonds, which will fruit very well in most soils, and especially in South or South-east exposures ; or with standard apricocks, which last mentioned fruit will do extremely well in a South-east, as well as in a South-west aspect. Of cherries I would plant the May-duke, Holman's-duke, and two or three morellos, and *Hertfordshire* cherries, to improve the taste and bigness of their fruit, which, in this good aspect, it will do in an extraordinary manner. I shall here, before I proceed to another article, give directions for the culture, and management of cherries.

Cherries are a sort of *noli me tangere* with a knife. No fruit-trees agree worse with pruning than they do ; and therefore great care must be taken in that operation, which, if it is absolutely needful, must be performed carefully and sparingly. The soil these trees delight and prosper best in, is a fresh free loam ; they will not do upon a dry gravelly soil ; there they will blight, blast, gum, and at last die. These trees, if on walls, should be planted eighteen or twenty-four feet asunder, and a standard betwixt each dwarf ; this distance is sufficient. When the dwarfs have grown up so as to fill the wall, the standards must be taken away. I would chuse to have them from the nurseries the middle of *October* ; and having cut off all their bruised roots and fibres, and made the trees handsome and fightly, turning the place where they are budded to the walls ; plant the standards with their stems one foot from the wall, and their heads inclining thereto, fastening them with lists of cloth to it : The dwarfs may be planted at the same time, but they must not lye at such a distance from the wall ; five inches distance being fully sufficient. During the winter, lay some mulch, turf, or straw, above the roots of the new-planted trees, to protect them from frost. In the Spring lay turf with the grassy side downwards, if it is dry, on their roots ; but when it rains, uncover the roots to receive

receive the vernal showers. They will require no other care, except keeping the borders quite clear of weeds, which borders should be ten feet broad from the wall. In Summer, all fore-right shoots should be pinched off with your finger and thumb, which are produced by the beginning or the middle of *May*, to the sixth of *June*: Nor should this work be performed with a knife, either to cherries, or any other sort of wall-fruit; because, when it is done with the knife, it very soon cankers the branch or bud left behind, down to the main shoot; and such a fore-right shoot so cankered, will not attempt to spring again that year, at least not so soon as if the amputation was performed as above, the wounds of which would soon heal, and prepare for setting out again one or more new shoots. Besides, if fore-right shoots were allowed to remain on the trees at this season, or until the Autumnal, Winter, or Vernal dressing of fruit-trees, they deprive the fruit and bearing branches of their proper nourishment to give good succeeding crops. This particularly holds with respect to cherry-trees, for such Autumnal amputation makes them gum, and become good for nothing in a few years; especially the Morello cherries, which the more they are cut, the sooner they will die; for, in order to have their fruit well tasted and large, it is better to allow them to grow unseemly and quite rude upon a South wall, without ever allowing a knife to be applied to them; and those trees thus guided, I have often found, have had better, larger, and more plentiful crops on them, than the nicest dressed trees of the same kind I ever saw. I do not, however, mean to supercede dressing altogether in the Morello; they too may be so dressed, as to appear handsome, and at the same time to bear good crops, (if managed) as shall be directed hereafter.

The best and surest management, therefore, with cherries, is to lay their branches at full length horizontally to the wall, and never to pinch the extremities of their shoots, unless it be to make them to send out some lateral branches to supply a vacancy in the wall.

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This work should be performed only about the middle of *May*, that the wound may heal soon, and that, in this early season, the lateral branches, which are produced, may be full ripened and strong before the winter approaches : But in pinching the ends of the shoots I would be very sparing, for they produce a great deal of their fruit at the extremities of their branches, as also upon their spurs, which are produced upon two or three years old wood, and which you should never rub off, if you would have a good crop of cherries ; and if the trees are in health, these spurs will remain fruitful many years ; but so soon as they begin to knot and gum, and turn thick, and of a black colour, cut off the knots and spurs in *October* close to the branch, with a chissel, or any handy instrument, and smooth it ; the succeeding spring, if the old tree is healthy, will send out new branches. I shall treat of the heart-cherries, when I write of the West, or South-west aspected walls, and of the espaliers, on which I find they bear well, and rather better than upon walls, especially if the hearts are grafted upon the bird-cherry, which makes them dwarfish and very fruitful, as I have experienced ; but these stocks will not do for standard-cherries.

Next to the cherries, I would chuse to plant peaches and nectarines, observing, that what trees you plant upon one side of the large gate or hot-wall, the same sort of trees be planted on the other side of the said gate, or hot-wall, for regularity. The peaches I would plant, are these following :

1. The Red Nutmeg.
2. The Great French Mignon.
3. The Nobless.
4. The Montauban.
5. Old Newington.
6. Early Newington.
7. Double flowered for its beautiful Blossoms.
8. The Chancellor.
9. The Early Purple.

## 10. Red Magdalene.

## Nectarines.

1. Elruge.
2. Newington.
3. Fearchilds early.
4. Red Roman.

If you please, you may plant some standard-almonds or apricots betwixt these dwarfs; but it will be necessary that the dwarfs betwixt which the standard-apricots are planted, should be at greater distances than those dwarfs betwixt which the standard-almonds are planted, because the apricots spread further; and these should be all of the *Brussels* kind, these sorts agreeing best with this management. The distance betwixt the dwarf peaches where the apricots are planted, and in a good holding soil, should never be less than twenty-eight or thirty feet, that the standard-apricots may have full scope and space to spread, without injuring the dwarf peaches below them on each side. This method will please some persons who are curious to have all their walls employed, and full crops; but where walls are but nine or ten feet high, standard-trees will not do; and on these walls one may plant peach and nectarine dwarfs, good bearers, at eighteen or twenty-two feet distance, which is a sufficient space for them, and the wall may be built of stone and lime, and may be lined within with bricks from within half a foot above the surface of the ground to the top of the wall.

The borders upon which those fruit-trees are planted, if upon a wet soil, should have gravel or lime-rubbish laid one foot and a half thick at the bottom below the surface of the ground, and should be hard beat down; and above that should be laid three feet of good loamy fresh pasture-ground, with its turf, which has been taken ten inches deep only below the surface, and which has lain twelve months, or more, to sweeten and rot the sward before it is used: This border should be

be raised one foot and a half above the surface of the ground. If your soil is rocky or gravelly, lay this compost above the gravel, but do not dig into, nor loosen the rock or gravel, for that might let the roots of the trees go down, and would hurt the fruit, though such a soil is good to plant figs or vines upon. But was I to have my choice, I would prefer a good loamy bottom to any soil for most sorts of fruits, and would lay the composts I have prescribed above it. The breadth of these borders may be eight or ten feet, the broader the better, but should never be deeper than three feet, that being sufficient for the roots of most trees, to receive the benefit of the sun's rays and of rain; for when they are deeper, they draw from the earth many undigested juices, which stop the fruit from ripening kindly.

The best planting season in middling dry grounds is *October*, and then you have the choicest of the nurseries before they are drawn and picked; but if your soil is wet, the best season is *February*, and the beginning of *March*; for as at that time of the spring, the ground is drying by the influence of the sun, the tender young fibres of the trees will not suffer so much, as if they had been planted in *October* or *November*, when the sun's influence on the earth is declining, and winter approaching.

If you are to plant your trees in *October*, lay in the compost for the trees, and make up the border in *August*; but if you are not to plant until *February*, lay the compost on the borders in *October*, in ridges, and let it lie all winter to get the frosts and snows, which will soften and mould it well; and in *February*, twenty days before planting, make up the borders for receiving the trees. When you plant, trim the roots, and head the plants to four or five eyes above the bud, and choose a dry day for that purpose; then with your spade mark out the holes at the designed distances, wide enough to receive the roots of the tree; in which plant the tree, observing to turn the bud outwards, whereby the wounded part of the tree, which was cut in the nursery when

when the bud was perceived to take, will be hid, as also the cutting off its head at planting. Let the stem of the tree be planted at six inches from the wall, with the head inclining thereto. The hole you make, never ought to be above eight inches deep in the ground; then fill in the earth with your hands, observing to break the clods, and to take out the large stones and grafs, and shaking the tree the better to settle the earth, press the same gently down with your foot, but not so hard as to compress the earth too much, whereby the young fibres might be cramped in their growth, than which nothing can be of worse consequence; then lay some sods with the grafs downwards upon the roots of the trees, to save them from drying; but when they are watered in summer, remove the turf, and water them gently about the roots, and over the young trees and branches, with a watering pot and rose; then put the turf on the roots again, until the middle of *August*, when it may be removed altogether. If you plant in *October*, do it in the same manner as here directed, laying mulch or straw at that season, above their roots, to prevent the winter frosts from injuring them; but suffer the heads to remain upon them until *March*, and fasten them to the wall, to prevent their being shaken out by the winds. In *March* head your trees, but be careful when you perform this work not to pull them out of the ground, or to disturb their roots; to prevent which, place your foot close to the stem of the tree, and take fast hold of the stock below the bud with one hand to hold it steady, and with the other hand top the head of the tree four eyes above the bud with a sharp knife, edging the slope towards the wall. This work ought to be performed in dry mild weather, for if wet or frost gets upon the wound, it will greatly injure the tree. After cutting, put some clay or grafting-wax above all the wounds, to prevent their bleeding. By neglecting this operation, many fine trees have been lost. This ought regularly to be done to all your young wall-trees, immediately after you cut off their heads, and let the clay or  
wax

wax continue upon the wounded parts of the trees as long as it will stick.

Having proceeded thus far, you must next take the mulch, if it is rotten, dig it into the borders, and stir the ground about the roots of the trees, but be careful not to injure them; afterwards turf them up as formerly mentioned, observing once every week to remove the turf, and water them as above directed. By the end of *May* or beginning of *June*, the peach and nectarine trees will have produced shoots of six or eight inches in length, if they have taken kindly, all which branches should be laid horizontally to the wall; but if there are but two long shoots produced, they may be pinched at this season, to produce lateral branches before the winter, whereby the vacancies may be filled up, the young trees appear more sightly, and their young shoots prepared to continue upon the trees: But, at the same time, all fore-right useless buds and branches should now be rubbed off, this being the most proper season for that operation. Observe not to suffer any of the young branches to run up perpendicular, whereby the under part of the tree may be left naked. This will make the trees very unfruitful; whereas, if the branches are laid horizontally, although the middle part of the tree be naked for some time, this may be supplied hereafter with proper fruit-bearing branches. This must be your first and principal care: For if this is now neglected, it is not an easy matter to bring trees, which, by this management, have at first been in a bad state, to be afterwards brought to a good form and shape for bearing fruit plentifully.

In *October*, when you observe the young trees have done growing, if their shoots are strong, prune them down to eight, but if they have weak shoots shorten them to five inches; and neglect not at this time in particular to train them horizontally to the wall; for peach and nectarine-trees cannot bear to be so often cut as others, their wood being soft and pithy, which will make them gum and go off entirely in a few years. In severe frosts the following winter, it would not be

improper

improper to cover their roots with sod, straw, or mulchy substance, which will be of service to their roots, especially to those trees which were planted in *February*, or in *March* preceding.

In *May* following, when the trees are shooting, neglect not to look over them carefully, to rub off all fore-right buds or shoots, or such as are ill-placed, and which will not bend well unto the wall; for I would rather take off such shoots altogether, then strain, force, or unnaturally bend them, whereby they may break, gum, and twist, so as to destroy the trees.

At this season is the true structure of the tree to be formed, and no later; and you can be then a judge how to regulate its growth to your mind and inclination, both for appearance, and for bearing good crops. Where vacancies are like to be in the wall, pinch off a joint or two at the top of the strong branches, that thereby good lateral branches, to fill vacancies, may be made by shoots, well formed and ripened before *October*, which is the last season of pruning. By this means, all the parts of the tree will be furnished with good fruit and bearing wood in proper order, which is the greatest beauty of wall fruit-trees; but never stop a shoot, but where there is a necessity to fill up a vacancy in the walls; for otherways you would, by pinching the shoots, fill the walls with too much wood, which would be a confusion of branches not to be remedied, and the tree itself would, by such a multiplicity of branches, be made too weak to bear any fruit.

It is remarkable in peach and nectarine-trees, that the best method of pruning them is quite different from that of pruning any other sorts of fruit-trees, for they bear only upon the shoots of one and two years old, and no other. *May* therefore is the proper season for managing those trees, so as they may annually be furnished with proper bearing wood; when luxuriance may be checked, and new shoots produced where they are wanting, which, by *October*, will be fully ripened, and be strong enough for the fruit-bearing purpose next season. There is little more required in pruning peach-

es and nectarines, than these articles; *first*, That every part of the tree be equally furnished with bearing wood; and, in the *second* place, that the branches be not laid too close to one another; and that the pinching these trees in *May* be never neglected.

In pruning peach and nectarine-trees, (which is very different from that of other fruit-trees) you should always cut them behind a wood bud, which is easily known from a blossom bud, being shorter, rounder, and more turgid than a wood bud; there being always a necessity to have a wood bud leading to attract the nourishment to the fruit, which cannot be done by a leaf bud: The length of these branches, upon strong trees, should be ten inches, and upon weak trees six: but in this you must be directed by the leading wood bud, upon which the future welfare of the tree depends: And as in these trees, the fruit is not produced upon spurs or cufsons, as on apples, pears, plums, and cherries; it is therefore absolutely necessary, for the production of good fruit, to have a leading wood bud before your blossom buds, that the fruit may be well nourished by this bud's attracting the nourishment from the root.

In nailing the shoots to the walls, they ought to be placed at as equal distance as possible. Large peaches and nectarines ought to be six inches asunder; for the smaller sorts, four inches will do; and be sure to lay them all in an horizontal, and never in an upright position. The shoots being thus regularly and in season trained to the wall, the fruit will be equally exposed to the sun and air, and will be kept in an uniform state of growing. The deferring taking off or pinching the ill-placed luxuriant fore-right buds and branches till *July* or *August*, instead of doing it in *May* or the beginning of *June*, has this tendency, that as by that time the fruit is considerably advanced, and much shaded, so being afterwards too much exposed by these useless branches being necessarily taken off (and till then unnecessarily kept upon the trees) the fruit thereby will become tough skinned, ill tasted, and late of ripening.

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By rubbing off the unnecessary and ill-placed shoots, as they are produced in *May*, the *Michaelmas* cutting will in a great measure be prevented, and the nourishment will go to the fruit and the useful branches, instead of being expended in maintaining useless wood, which must be cut out in *October* at any rate.

You must therefore never shorten the shoots after *May*, or at furthest the 25th of *June*, upon any account, because the shoots produced after that season are weakly and good for nothing; and though they may stand the succeeding winter, yet they will never nourish fruit kindly. All such weak branches should at *Michaelmas* (which is the best time for winter-pruning) be cut out. By strictly observing these rules, I have had far better crops of peaches and nectarines, than my neighbours, who had much warmer situations, but unskilfully managed their trees. I forgot to mention, that it will be necessary to dung the borders once every two years with old well rotted dung in *November*, spading it down into the earth, but not above one foot deep. The double flowering peach I planted upon walls, for the sake of its beautiful blossoms, rather than for its fruit, which is often late and ill-tasted.

The same management I found to agree perfectly well with late peaches, to which however I applied some artificial heat to bring them to perfection. The only difference was, that these late peaches, when they came to be in a condition to be forced every year, were obliged to be pruned shorter in their branches than the others planted upon the common walls, because the branches of the forced peaches are more drawn.

When your fruit is set, and of the bigness of a small nut, thin them to the space of five or six inches, fruit from fruit, for it is far better to have a well nourished good crop, than a starved small though plentiful crop; by this means your trees will be continued in a good state for bearing crops many years; whereas, if they are overcharged with fruit, the crop is bad and ill-ripened, worse tasted, and the trees will not recover a good state of bearing for some years afterwards.

If these directions for pruning your trees be duly observed, there will be very few complaints of having bad crops by blighting, or by the branches dying, or the blossoms falling off before the fruit forms, or even the fruit falling off the tree before it is ripe, all which is owing to the neglect of looking over the trees at the proper seasons, by which means they are overcharged with branches ill-ripened, or with too much fruit. And here I must inform my readers, that it is as necessary to have the branches of trees well ripened for bearing good fruit, as it is to have well ripened fruit for the palate. I call a branch or shoot of a tree well ripened, when it is produced in a season, whereby it has the whole summer and autumn to give it that degree of strength sufficient to make it resist with vigour the inclemency of winter, and to make its wood strong, and its pipes for receiving nourishment of a good contexture, to supply the young fruit at the proper season. This, and no other, is a well ripened branch or shoot of a fruit-tree, which cannot be obtained at any other time than in *May* or *June*.

Blights may happen to trees ill-treated, but they never will to trees managed as is here directed. A gravelly soil will blight fruit-trees; but make your borders as directed, and it will never happen. They will be blighted also by being too deep planted, but if you raise them, or plant new ones in the manner here prescribed, this misfortune will cease. Unkindly frosty seasons may happen to spoil some trees; but where they are well managed, and become strong, they will very seldom suffer by the inclemency of weather. I would recommend peaches budded on apricot stocks, rather than on plum stocks, the apricot's wood being hardy, strong, and compact in texture, whereas the plum wood is too soft and pithy for this purpose. Upon the sides of the wall next the peaches, I would direct to plant the following plums, *viz.*

1. White Primordian.
2. Morocco.

3. Little

3. Little black Damask.
4. Great Violet Damask of Tours.
5. Fotheringhame.
6. Perdrigon white.
7. Violet Perdrigon.
8. Imperial.
9. Red Diaper.
10. Green Gage, largest Sort.
11. Mirabelle.
12. St. Catherine.
13. The Empress Plum.
14. Wentworth Plum.
15. Amboyna Plum.

All these will also ripen well upon South-west exposures; and the white primordian, and the small early black damask, will ripen very well upon espaliers, as will most of the small plums; but to the big plums I would always chuse to give walls; they ripen better there, and are in less hazard of being thrown off the trees by severe blasts of wind: and although they will bear on espaliers, yet in this country they never do so well as when on walls. I cannot omit to mention, that I have always found that those that are budded do better than the grafted, and not liable to gum near so much as the others generally do.

After these trees have been one, or at most two years budded, it is then the most proper time to take them from the nursery, and plant them against walls. They delight in the same soil with the peaches, and as the manner of planting and preparing the ground for them is entirely the same, I shall not here repeat what has been so fully treated of in the article of peaches. The distance betwixt tree and tree upon ten feet high walls, should never be less than eighteen feet, and if you would chuse to plant standard plums betwixt the dwarfs, then twenty-four feet dwarf from dwarf will be a good distance, and no less will do. But I would chuse to have dwarfs alone, rather than standards and dwarfs upon one and the same wall.

There are no greater mistakes committed upon any tree whatever, than in the management and pruning of plums. Our gardeners in general think they cannot give them too much discipline with a knife, the wood being strong and hardy, and the fruit easily obtained. But they are mistaken; few fruit-trees, except cherries, can endure the knife worse: For by experience I have found, that frequent and unskilful pruning does not only affect their branches, but their fruits also, by gumming of both, which ends in sterility, and at last in certain death.

Plums bear their fruit upon spurs or cufsons, and also upon the last year's wood; whereby there is no necessity of pruning them, as you do peaches and nectarines, by shortening their branches annually, to obtain a new stock of bearing wood; for their spurs will, if rightly managed, continue fruitful several years; nor should you shorten their branches, but where there is a necessity to have a vacancy in the walls filled up; and this should be done in the end of *May*, and no later, for the same reasons as are given for the management of peaches. You must also at that season rub off all fore-right and ill-placed shoots and buds, which, if done to purpose, will supercede the necessity of too much winter-pruning, which is prejudicial to most sorts of stone-fruit. This tree always produces a great deal of blossoms at the extremities of their shoots. If these be pruned off, you can have no fruit there; and the unnecessarily stopping these shoots, gives a multiplicity of branches, which deprives the few fruit that are upon the trees of their proper nourishment. Hence it is, that, in many gardens, I have seen a quantity of strong woody large gummy plum-trees, all made barren by this knife exercise. I would never therefore advise to pinch the extremity of the shoots later than *May*; and even not then, but when there is a necessity for it, and you want branches to fill up vacancies; and be sure to lay in all the branches horizontally, and not too thick, the largest leaved and fruited plums thinner than the smaller sorts. Nor should you suffer your trees to be overcharg-  
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ed with fruit, but thin them in *May* with discretion, otherways they will gum and become ill-tasted, especially the imperial *bonum magnum*, and the *Wentworth* kinds.

These instructions observed, both with plums on walls and espaliers, you cannot fail of good crops. I would recommend for espaliers these following plums,

- 1 Orleans.
- 2 Mirabelle.
- 3 Brigniole.
- 4 Haresflaw.
- 5 St. Catherines.
- 6 Mirabolan.
- 7 Queen Claudia.
- 8 Cheston.
- 9 Late Horse Plum.
- 10 Oxheart Plums.

As I said formerly, I would always recommend in the planting of all these different kinds of fruits, that they should be planted by themselves in the length of walls or espaliers, and never intermixed one with another, for that makes confusion in the management of the trees ; whereas, when a gardener's mind is taken up in the pruning and managing of one and the same sort of trees, he must go through those before he prunes trees which perhaps require a very different method of knife-management, and in this way he will not intermix the management of one sort of fruit-trees with another. Thus far is necessary for persons who undertake the good management of fruit-trees upon walls, or even upon espaliers ; and which will be found very necessary for the reasons here given, which I am sure will be allowed, by every good judge in these matters, to be the best methods to obtain plentiful crops of good fruit.

I come now to treat of apricots or apricocks. The kinds which I think should be planted against South-walls in this country, are these :

Upon

## Upon South-walls.

One or two masculines, to have them early.

Transparent.

Turky.

Roman.

## Upon South-west or West-walls.

Masculine.

Algiers.

Breda.

Orange.

Bruffells.

The borders upon these walls may be ten feet broad, and three feet of good fresh earth compost laid on the soil as directed for peaches, which, for all fruits, is enough of depth, and which should be taken from a hazelly loam-pasture, ten inches deep, with the sward to lye and rot for twelve months at least before it is put to use. The nursery man will furnish you with those trees budded (and which should only be two years old from the time of budding) on good free growing plum stocks; but the *Bruffelles* I would incline to have budded upon the St. *Julian* plum, for it will not take so well on any other plum stock, because of the compactness of its wood, which agrees with the stock here mentioned, or they may also be budded upon apricock stocks, obtained by sowing apricock stones.

The making up of the borders, and the method of planting them, is the same as directed for peaches; but the distances from each, should, in ten or twelve feet high walls, be at least twenty, or twenty five feet, for reasons I shall hereafter give, although I know it to be opposite to the common practice. The method of pruning them, is much different from that used for peach trees. If you plant in *October*, you must cover their roots with rotted dung or mulch in Winter, and they

they must not be headed until *March*, that the frosts may be over, when you must cut them to four or five eyes above the bud, having planted the stems of the trees six inches from the wall, with the head inclining thereto. If the Spring after they are planted proves dry, it will be necessary to water them all over with a watering pot and a rose upon it, which will be of great service; and removing the mulch or dung, cover their roots with some sods, laying the grass downwards to prevent the roots drying in the Summer season.

As their branches are produced, they should be nailed to the wall horizontally; and all fore-right and ill-placed branches should be taken away entirely, but stop no shoots which are to remain on the tree in the Summer season; for this, besides making a needless multiplicity of branches, does much harm to the trees, by making them push lateral branches at a time when these shoots cannot be perfected or ripened before Winter, so as to withstand its severities, and therefore will never be in a good bearing state.

So soon as you perceive your trees have done growing, unnailed the shoots which you laid on the wall in Summer, and if they are strong, cut them to nine inches long; if they are weak, cut them to five inches long; by which cutting the lower part of the wall will be well furnished the succeeding year, or the second year after. And I would always choose to have the under parts of the wall well laid in with branches, before I attempted to lay in branches above, at least before I pinched them for making the lateral branches spring.

The next Summer's management will be much the same as the former; but be sure in *May* to rub off all fore-right shoots, and nail the others close to the wall horizontally when they are produced; at *Michaelmas* shorten these shoots as was directed for the former year, the strong branches to nine, the weak ones to five inches, but do not shorten too many of these branches, whereby you may over-charge your trees with shoots. Apricocks produce their blossom-buds upon cursors or spurs, as well as upon the  
last

last year's shoots : Wherefore great care ought to be taken not to harm them, or rub them off ; but, at the same time, if you want to cut off an useless or luxuriant branch, cut it out altogether, and do not save it, in hopes that it will put out spurs or snaggs for bearing ; for if it should produce any, they will be woody, unfruitful and luxuriant as itself.

After your apricocks are set, and become as big as hazel nuts, thin them with your hands, taking care in pulling them off, not to bruise the spurs or small buds which are near the fruit. By observing these rules with discretion and some practice, you will soon attain to the method of pruning trees well, which is one of the most material qualifications of a good gardener, and is a science which has been by many authors so perplexedly and confusedly wrote of, as to render it entirely unintelligible to many, or not to be practised by any person whatever : But the observing these few general rules of looking into the different growth of fruit-trees, will make you expert : For instance, vines produce on wood of the same year's growth ; peaches and nectarines upon the former year, or at most two years wood ; and plums, pears, cherries, apples, and apricocks, on cursons or spurs, of three, four, or five years growth. Of each of these I shall set down a few rules, general to all, and special to some.

Vines should have all dangling shoots soon taken off, and should never be suffered to have more than one shoot produced from one eye, and their fruit-bearing branches topt in *July*, at the third or fourth joint above the fruit ; as should also the long branches which are left on the trees, to make them ripen well for bearing, or for pushing good eyes for succeeding years, in order to obtain strong bearers ; and this operation should be performed, whether the vines have or have not fruit upon them. They should be pruned at *Michaelmas*.

Peaches and nectarines must annually have a new succession or provision of branches made, as they bear only upon one or two years old wood, and no more upon

upon the same shoots. In *May* that provision is to be made, and no later, by pinching their strong branches to produce new ones, and displacing all fore-right and uselefs branches or buds at that season ; and in *October* uselefs steril branches must be cut out.

Cherries hate any knife-management, except for necessity, to furnish the vacancies in walls, at *Michaelmas* or *May* ; but the less the better ; rub off all fore-right or uselefs shoots in *May*, and no later.

Pears do not agree with pruning at the extremities of their branches, which is never done but in the case of necessity ; they require the displacing of fore-right shoots in *May* ; but they, as well as cherries and plums, all of which bear on cufions or spurs, abhor uselefs amputations, unless it is to supply wall-vacancies, or to cut out quite luxuriant branches, which you can soon discover, by their being strong and woody, and with very long spaces betwixt the eyes or buds, which last appearance denotes them to be woody, and consequently not fruitful. *Lastly*, all branches which are to continue on the trees, ought to be laid in horizontally, whether on walls or on espaliers, and that they be kept at a good distance one from another, according to the size of their leaves and fruit, in such a manner as not to be crowded, but that both the fruit and shoots may have plenty of air and sun to ripen them kindly.

As to pears, the Summer and Autumn sorts ripen extremely well upon espaliers ; but the Winter kinds, either for baking or eating, must have South-east, South, or South-west walls ; what are called late Autumn pears in *England*, will not ripen here except upon walls.

All the buttery, or melting sorts of pears, should be grafted on quince stocks, such as the

Grey and red Butter Pears.

Cuisse Madame.

Crasane Pear.

The good Lewis Pear.

The L'Echasserie.

The

The Virgoleuse.

The Winter Thorn.

St. Germain.

Cadillac.

Doctor Uvedale's St. Germain.

The German Muscat, and some others.

But this method of grafting them upon quince stocks, is to be performed only where you have a good strong holding soil, otherways they are better grafted on free stocks. When you prepare the borders for planting, there ought to be three feet depth of good strong clayish soil made for these borders, which should not be narrower than ten feet, as has been formerly directed for borders in which other fruits were planted. The manner of preparing them for planting, and of managing them immediately after planting, being the same as for other fruit-trees, I need not repeat it here. But the distance, especially upon walls, which I would allow to them, tree from tree, should not be less than twenty-five feet, because of their long extending branches, which if you shorten, except upon great necessity, will prevent their ever thriving or being fruitful. The first Summer after they are planted, their branches must be trained horizontally to the walls. If they are produced too thin, at *Michaelmas* you may shorten them; but I would chuse to be as sparing of this operation as possible, and rather allow them to take their full scope at length, for probably they may, (if the trees are healthful) produce lateral branches from these first year's shoots abundantly to fill up the wall. If they are large fruiters, their branches should never be laid in narrower compass than nine inches, branch from branch. The blossom-buds are for most part produced at the extremities of the shoots, as well as upon the spurs or cufsons of the branches; if you therefore shorten them, you take away these blossom-buds; so that the longer the branches, so horizontally laid, the more blossomy spurs they will have, from which you are to expect a good crop of fruit.

I have

I have often observed the long branches of pear trees, for the first three or four years after their beginning to show blossoms and fruit, show them at the extremities of their long horizontally laid branches, when they had no blossoms on any other part of these branches, which makes young gardeners think their trees will never bear good crops ; but in this they are greatly mistaken ; for where these trees are well managed, and come to be eight or ten years old, the great hurry of the sap, which, when young, and on the approach of the Spring, runs to the end of their branches from the youth and vigour of the tree, but by age and maturity comes then gradually, and with fertility, to be dispersed amongst the intermediate spurs, which are situated betwixt the stem of the trees and the extremities of its branches, and makes them all fruitful. The trees should be often looked over in *May* and *June*, that all luxuriant and fore-right shoots may be displaced as they are produced, which will occasion very little knife-work after their fruits are gathered ; and it will be necessary in gathering them, to be careful, that the buds next to the stalks of the pears be preserved, and be not rubbed off in gathering the fruit ; for from these come the most blossom-buds for the ensuing season. By turning up their foot-stalks, the fruit will easily come off, without harming the spurs which produce fruit and blossoms for the ensuing year.

The best season for pruning these trees, where there is necessity, is immediately after the fruit are gathered ; but as some of them remain late on the trees before they ripen, if frost should appear to be setting in for a continuance, (as happens sometimes) it will be proper to defer pruning them until *February* or *March*.

I would also direct to have some trees of the *Cuisse madame*, and of the Summer *Bon Cretienne* planted on walls, which will make them come earlier, and have larger fruit than these trees have upon espaliers. This much will suffice for the culture of pears upon walls, but observe to water them well in dry weather in Summer, this will keep their fruit always in a growing state, otherwise

otherwise they very often drop their fruit in dry Summers, or in Autumn, before they are ripe.

I have laid it down as a rule, that all fruits of the same kinds, and which require the same soil and culture, should be planted together, especially upon walls. And I thought it proper, in directing a plan for this large kitchen-garden, to have a wall through the middle of it, which will answer extremely well for figs; so would have it made twelve feet high, built of stone and lime, and lined with bricks in the best manner, with piers of brick, and iron hooks fixt in them, at every twenty feet distance, jutting out from the wall six or eight inches, which piers and hooks are to fasten matts or reed-covers, to fix over your fig-trees in very severe winters, and early in the Spring. Betwixt these piers I would have one fig-tree planted; and as the culture of this excellent fruit is but little understood by many gardeners, I shall be particular, and give my reasons for what I advance, as it is somewhat different from the common and modern practice. The best sorts of figs for this country, are the large white and the large blue, the Marseilles, the Candia, and the Rose fig.

They are propagated by layers, and by suckers; but the first method is what is preferable, for plants obtained from suckers produce always suckers, and are never so good bearers as the layers, which make good plants in one year's time. Lay the branches in *February*, and they will be well-rooted against that time twelve months, when they should be taken off, and planted where they are to continue for good. Only observe, that when after your branches are layed, and begin to take root, to keep that part of them which is pegged down well covered with earth, and well watered in dry weather; and in winter well covered with pease haulm, to prevent frost from injuring the young fibres of the layers, which are then shooting into the ground.

The soil in which they prosper well, is gravel, or chalk mixed with loam; they will also grow in good kitchen-

kitchen-garden earth : But where you do not prepare a soil suitable for them, you cannot expect any tolerable crops of fruit ; wherefore it is proper to make the soil for them in borders on the wall, two or three feet deep, and six or eight feet in breadth.

I would choose to plant these trees the beginning of *March*, and no sooner. They should be planted in the same position, as is directed for most other fruit-trees upon walls ; but they should not be headed, for the fewer amputations they undergo, excepting in case of necessity, the better they thrive. The first year they will require some refreshings with water in dry seasons ; and by the end of Autumn, I would advise some mulch to be laid about their roots, to prevent frosts injuring their tender fibres ; and by this time they will have made some side-shoots, which should by *October* be all nailed horizontally, and close to the walls. The second year of their management is much the same as the first : but in *April* and *May* I would always observe to rub off all fore-right shoots, which will not ply well to the wall, at least these buds which are ill-placed ; but such as are well placed, should be allowed to continue to fill the tree at bottom with young wood, which is what only produces fruit, and not to lay them in nearer than ten inches ; for crowding these trees with bearers is as bad as having too few. At *Michaelmas* there will probably appear some small young fruit on the branches ; but these I choose always to take off, for it very seldom happens that these continue, but rot by frost or storms ; and if they are allowed to rot on the young branches, they often infect them, which ruins most of the young tender wood.

I own I am of the opinion of those, who are not fond of pruning this tree in Autumn, and my reasons for my opinion, and my practice, are these, because this plant is of such a soft pithy substance, that it must bleed much at this season, probably indeed not so much as if it was pruned in *May*, *June*, or *July*, when the sap is in full motion ; but sure I am, those branches will then bleed, and their wounds will not heal, so as to be quite  
found

found before the Winter's frost ; and from this I have often found a branch pruned in Autumn, rotted entirely against *February*. In Autumn the sap is but descending or evaporating, and is not quite gone down : wherefore, such amputations must occasion great bleeding and effusion of sap ; for which reason, the time of year before the sap arises, or is in motion, I take to be the best for pruning, and this, I am of opinion, is the end of *February*. I would perform first of all my wall-prunings, and at that time also shorten my long branches, the better to obtain new wood ; but I would be very sparing of topping branches, unless there is an absolute necessity for so doing. Some modern practitioners will object to this *February* pruning, that, as the Spring approaches, the trees will bleed more than at *Michaelmas*, and will consequently suffer more : To which I answer from experience, that the sap is, in such trees as cast their leaves, in a less degree of motion in *February*, than in *September*, or even in *October* ; and this I experienced in *September* 1750, upon a young branch of a fig-tree, entirely divested of the late crop of fruit, and a young branch of the same tree, of the same length and bigness, in *February* 1751. I weighed them both, and, beyond contradiction, found that the fresh branch cut off on the 22d of *February* 1751, O. S. weighed a fourth part less than the branch which I cut off the 29th of *September* 1750, O. S. Whence it appears, that there is less sap flowing in the branches of these trees in *February*, than there is in *September* ; the consequence of which is plain, that there will be less effusion of sap, and less bleeding by a *February*, than by an Autumnal pruning of fig-trees. Besides, there is this advantage, that the frosts in the end of *February* are most all gone ; but in *September* the frosty inclemencies of the Winter are to be expected, which may be very injurious to the pruned branches of these very succulent trees. It is plain, that by the great appearance of young fruit on these trees at *Michaelmas*, which come out on the branches, and sometimes swell to a considerable size, that there is more sap at that season

season flowing in the branches of these trees, than in *February*, when there is little or no vegetation appearing ; from which it is certain, that there is more sap flowing in the branches of these trees in Autumn than in *February*, or even in *March*, and that in Autumn there is a Winter to be expected, and in *February* the Spring is fast approaching, by the nature of the season, all severe frosts being dissipated, it is therefore safer to prune early in the Spring, than it is in Autumn, these succulent trees.

In Winter, about the beginning of *December*, observe to lay mulch about the roots of fig-trees, that they may not suffer by a severe and sudden frost ; and it will be very proper, in building the walls you intend for figs, that in the piers there should be fastened very long broad and strong double forked hooks, at eight or ten inches distance hook from hook, from the top to within two feet of the bottom of the brick, and also in the middle spaces of the brick-wall, betwixt these piers, whereby, in severe weather, some covers of reeds, straw-hurdles, or matts, may be fastened to cover them, without which they are more subject to perish than any fruit-trees I know ; and in the Spring these should be gradually, but not all at once, removed.

I would never advise planting of figs upon espaliers : For from experience I know they will not succeed, so as to have a crop of fruit worth the trouble or expence ; and for those planted in boxes, excepting where they have the advantage of an airy glass-case, where there are no herbaceous plants set near them, of which if there are but a few, they will not do ; and even wherethere are such conveniencies, you can have a very uncertain crop from figs so planted, because of our great winds which tear the trees in pieces ; and the uncertain weather of our Summers, which, of late years, has been so bleak and cold, as to destroy many of our common crops.

Upon this South-aspected wall, as it is built high, you can have pears and apricots, but not intermixed with the figs, which should be always planted by themselves ; and here and there, upon the piers amongst  
 E. them,

them, you may have an early vine or two, to try if they will ripen, such as the *white sweet water*, and the *white chasselus*; or if they do not ripen, there may be verjuice got from them, and vine-leaves, which are good for several kitchen-uses. Upon the side of this wall facing the North, you may plant Morello cherries and currants, which will grow there very well, and produce good crops. Thus I have laid out the two South-aspected walls of this garden, with the culture of the fruit-trees I would direct to have planted thereon.

I proceed now to the South-west aspected wall, upon which may be planted the following fruits.

*Of Peaches.*

Bourdine.  
Double flowered.  
Red Nutmeg.  
Ann Peach.  
White Magdeline.  
Great Mignion.  
Nobles.  
Montauban.  
Early Purple.  
Red Magdeline.

*Cherries :*

Morello.  
Holmans-duke.  
Carnation.  
Bleeding-heart.      } upon cornish cherry-  
Amber-heart.            }        stocks.  
Hertfordshire.

*Apples :*

Golden-pippen.  
Nonpareille.  
La Reinette Grise.

*Nectarines*

*Nectarines :*

Fairchilds early.  
Newington.  
Elruge.  
Red Roman.  
Tempels.

*Plums :*

White Primordian.  
Early black Damask.  
Cheston.  
White Perdrigon.  
Great Violette of Tours.  
Fothringhame.  
Perdrigon Violette.  
Wentworth.  
White *bonum magnum*.  
Red ditto, or Imperial.  
Queen Claudia.  
Green Gage.  
Drap d'Or.

*Pears :*

Summer Bon Cretienne.  
Winter ditto.  
Pound Pear.  
Black Pear of Worcester.  
Cuiffe Madame.  
Virgoleuse.  
St. Germain.  
Red and grey Beurri's.  
Crassane.  
Colmar.  
La Besside chaumontelle.  
La Manfuette.  
Holland's Burgamont.

E 2

*Apricots :*

*Apricots:*

Masculine.

Brussels.

Orange.

Turkey.

Breda.

Algiers.

A white Jessamine or two.

Three or four Mulberries.

Six or ten thin-shelled Almonds,  
and some others as you fancy; as the ground and situation will suit.

This wall should be built of stone and lime, and lined with bricks, as is already proposed, ten feet high. The fruit Trees should be all planted by themselves, and not intermixed; the borders should be ten feet broad, and two and one half deep, made of new earth, as has already been directed, under the different articles of the several fruits; and it will be very proper at the bottom of this border to lay some clay, and beat it hard, so that the roots of the trees, when they reach to the bottom of the border, may not have liberty to enter into the clay; this beating of it hard, and cutting off from your young trees all carrot or descending roots, and forcing them horizontally prevents them from going too far below the surface of the earth, so as to be deprived of the influence of the kindly rays of the sun, or of showers. I have heard of some persons who have put flag-stones at the bottom of these borders, for the same purposes; but of this I have no experience myself. One thing I observed was, that when I got my fruit-trees from a nursery, I examined how deep they had been planted there; and after trimming their roots, I planted them in such a manner, as to be one inch only deeper in the ground than they were planted in the nursery, and no more, unless when they had been too deep planted, in which case I planted them shallower,  
one

one foot and one half being deep enough for any trees whatever. Four feet of these borders next the walk may be employed for all sorts of annual kitchen-garden stuff; as for perennials, such as asparagus, &c. they would rob the trees on the walls of their proper nourishment, and prevent them from bearing good crops.

Having thus disposed of the South and South-west affected walls in this garden, it will next be proper to lay down some methods for disposing of the other two walls, so as to make this garden pleasant and profitable.

As to inclosing the South part of the kitchen-garden with a wall; if the proprietor inclines it may be so; and in that case they ought to be ten feet high, and the South-side of it planted with the best of fruits, each kind by itself, and not intermixed. This wall must be well defended from thievish intruders, by a deep piece of water the whole length of the wall, or by a formidable haha, or sunk fence: And as a further defence, I would here have my gardener's, and his servants houses, that the fruits in season may be preserved by their watchful care in the night time. On the North-side of the wall, you may plant currants, may-dukes, morello cherries, also some Dutch grafted filberts as standards, thirty feet from the wall, to supply with plenty of fruit-bearing trees and shrubs all the parts of this garden; but be sure when you plant out your grafted nuts on a border, let them be placed at twenty feet distance tree from tree; and let the border, every three years, be dug up and well dunged. Here also may be nurseries for thyme, hyssop, lavender, perennial marjoram, rosemary, sage, winter savory, and some other of those herbs, which in a better exposed part of the garden would be a nuisance. Nurseries are also here proper for your best sorts of currants and gooseberries, to supply deficiencies in the currant espaliers, or North-sides of walls, or in the borders allotted for gooseberries, taking care, to avoid confusion, to number the kinds of them exactly in your pocket-book *index*, with written or cut labels at the ends and tops of the

rows of the several kinds of them. Here too may be planted sorrel, spiremint, chives, pepper-mint, and all other perennial herbs for the kitchen-use; the chief reason for planting these in this place, is, that when they are wanted early upon hot-beds, or upon more southerly exposures, they always take more kindly, and are sooner fit for use.

In this part of the garden there may be a piece of ground allotted for a plantation of raspberries, the best kinds of which are the red and the white fruiting kinds. There is a sort with late red fruit, but it is not such a good bearer as the two former sorts. I have also heard of a raspberry which bears two crops in the year, the first in *June*, and the last in *October*, the last crop of which is said to be the best; some plants of these raspberries we have now in this country.

Raspberry plants are propagated from suckers which their roots produce plentifully. When you design to make a full plantation of them, dig and trench your ground in *August* preceding, and turn it over again in *October*. The soil should be a good hazelly loam, not too wet, or a stiffish clay, nor on the other hand light and sandy, but of a middling consistence; and I would choose the ground to be new: Lay it up in ridges to get the frost in winter, which will mould it; the beginning of *March* work it again for planting, laying it as level as you can. When you take off your suckers from the mother plants, take them single one by one, and not a clump of suckers; prune their fibres, and cut down their tops to a foot and a half above the roots; but be sure to preserve all the under buds which you observe nearest their roots: These are the rudiments of new suckers, and stems for fruit.

The planting rasps too thick is a great mistake, for thereby their fruit becomes small and ill-tasted; for as they are very free shooters, and multiply fast, when they send from their roots many suckers, every one of which has two or three fruiting-branches, the sun and air is excluded from duly ripening their fruits: Wherefore, plant them three feet, row from row, and three feet,

feet, plant from plant; and at the end of *September* be sure to top their longest young branches, for if it is done later, the frost will injure the wound. The old wood which bore that year, ought to be quite cut down. Once every two years, dig the ground betwixt the rows, and give them some of the oldest rotted dung you have; by which management their roots being kept free from too many suckers, the old wood cut clear out, and the young shoots topt to two feet above ground, you cannot fail to have good crops of fruit every year. It is however proper to make new plantations of them once every fourth year. They love a shaded, rather than a sunny exposure, but should not be planted under the drip of trees. For this reason I would choose to plant them in a spot of the garden which has a North aspect.

Those who choose no wall upon the South-side of their kitchen-gardens, may plant clumps of exotic trees, which will stand abroad, and endure our severe winters (of which the trees below are a catalogue) mixed with roses; and those clumps may seem to be the derminations of walks from the fields, beyond the hah. The exoticks for such clumps are these, viz.

All the Sorts of Dogwood Trees.

- Magnolias, two Kinds.
- Tulip Trees.
- Taccamaha Trees.
- Cedar of Lebanon.
- Ptelea, or Carolina Shrub Treefoil.
- Flowering Mapple.
- White Beam Tree.
- Button Wood, or Cephalanthus.
- Sassafras Tree.
- Virginian Spindletree.
- Pishamin.
- Venice Sumach.
- Virginian Sumach.

Catalpa.

Catalpa.  
 Benjamin Tree.  
 Stript Arbor Vitæ.  
 Stript Ash.  
 Manna Ash.  
 Flowering Ash.  
 Blotched Elm.  
 Blotched Plane.  
 Arbutus.  
 Double flowered Thorn.  
 Double flowered Cherry.  
 Chincapin Tree.  
 Hickery Walnuts.  
 Cornell Cherry.  
 Itæa's.  
 Clethra Alnifolia.  
 Azalia, or Winter-bloom.

As to East aspected walls, there are many gentlemen, who rather choose instead of them, to have an orchard of standard fruit-trees, on this side of the garden, to protect it from the Westerly winds, and particularly in large gardens, where there is an abundance of other walling. But others choose walls.

If then it is the fancy of the proprietor to have a wall, it should be ten feet high, faced with bricks, upon which may be planted cherries; the Hertfordshire cherry, morrelios, Holmans duke, and black hearts; and many sorts of plums; the orgillon pippen appels, &c. No sort should be intermixed with another, for the reasons given in treating of planting trees upon the South and South-west aspected walls; but currants may be planted betwixt each of them, except the cherries.

The borders upon the wall should be ten feet wide, as well for the good of the fruit-trees, as to have some proper kitchen crops upon them. Here you may plant some of the masculine apricots, which, though they will not come so early, will by this exposure be firmer in the pulp than upon a South aspect; and here may be planted

planted the cuisse madame pears, which upon this wall will fruit very well ; and a few red nutmeg peaches : To all which the same culture will serve, which I mentioned, when treating of them upon the other walls.

But if it is the pleasure of the proprietor to have an orchard of trees, he may plant them the whole length of his garden, on the West-side, and he may add two hundred and fifty yards to the breadth of the garden, to give the trees space to grow, that they may not be too thick, which is a great fault. They may have a deep haha to the West, or some walling to defend the trees from thieves when their fruits are ripe, the same as is prescribed to defend the South-part of the garden. Next the haha, if there be one, should be planted some quick growing forest-trees, planes, ash or firs at a good distance, to the West of the orchard, and to the North, to protect the fruit-trees from winds. Fruit-trees should be planted in an orchard fifty or sixty feet from one another, and not in rows, but scattered elegantly up and down to diversify the view, and appear the more rural, which is handsomer than in formal rows, where it seems as if nature had been neglected, and art had usurped her place.

I design therefore to give some directions for this small, or rather an accidental orchard, which may be of great use to the proprietor's family, as well as to the protecting the kitchen-garden from destructive winds.

It is true, that by planting the fruit-trees at such great distances as fifty or sixty feet, there will be few trees ; but then it is certain that these few trees will bear better crops, and the fruit will be larger and better tasted, than in these places where the trees are planted at smaller distances, and where the air is pent up, whereby such plantations are subject to blights, thin crops, dropping off of the fruit before ripe, and having a bad taste from rancid and bad air : All which may be avoided by planting the trees in the manner here advised.

You are likewise to consider your soil ; if it is clay, it will be fit for pears ; if it is a good loam, it will do well

well for cherries and apples and some plums; so that you are to adapt your trees to your soil, or for the different soils you find in this piece of ground at the bottom of this plantation, you may there plant some quinces, which, besides being a good fruit for many family uses, is an excellent stock for grafting all the summer and autumnal pears upon; especially those which are very melting. The Portugal quince is the best for eating, or using in families, which should be budded or grafted upon the cuttings of the apple quince, for cuttings is the best method known to have good stocks of this tree, which will be of use in the family.

The ground wherein I plant these trees, I would choose to plow in *March*, and allow it one summer's fallow, not only to rot the sward, but to mould the ground; and if it is dry, I would plow it pretty deep again in *July*, and again in *September*, and would plant in *October*, tying my trees to stakes well fastened in the ground, to hinder the trees from being blown from their situation, and which must continue by them for five or six years, for the same reason. For the first two years, I would lay some sward about the roots, to prevent the injuries of hard frosts in winter, and of the sun and air in spring and summer from drying the ground too much; and take it for a maxim, always to plant young trees; for although great trees raised from nurseries, or other plantations, may soon bear crops, yet it is certain they will never bear so long, or such quantities of good large sound fruit, as young trees will produce for many years.

The apples I would recommend for this plantation, are the orgillon pippen, yellow leedington, golden pippen, gray leedington, fulwood, gogar pippen, potteraw apple, ten shilling apple from *Newcastle*, pearmains, redstraiks, courpendues, white janeting summer queening, strawberry apple, summer red and white calvilles, codlings, royal codlings, summer mary gold, Wheeler's ruffet, monstrous rennet, spice apple, embroidered apple, royal ruffet; and the pears, achans, burgamat, fucra

sucre vert, swans egg, crawfurd, golden knap, car-  
ocks, lemon pear, jargonelle, windsor, green chissel,  
red muscadelle, great blanquett, early rouffelette, musk  
robin, green orange pear, *August* muscat pear, rose  
water pear, princess pear, and some others; plums, the  
orleans, hairsflaws, early red damask, horse plum.

But if my advice was to be taken alone in this method  
of planting an orchard for a large family, I would de-  
sire to have it to the West of the kitchen-garden, in  
a separate piece of ground entirely allotted for that pur-  
pose, and planted in the same manner as is here de-  
scribed, with rows of forest-trees, to the West of the  
kitchen-garden, one hundred and fifty feet from the  
walls, which will preserve the orchard from Eastern  
blasts; and some rows of forest-trees to the West of the  
orchard, to preserve it from West and North-west winds  
too.

These are the general dispositions for the orchard, if,  
over and above the fruit which grows on the walls and  
espaliers of the kitchen-garden, it will be necessary to  
have such an orchard for fruit. Having laid down such  
general and extensive propositions, I come now to deli-  
neate the espaliers, and the fruits to be planted upon  
them in the kitchen-garden. It was formerly a constant  
practice in our kitchen-gardens to have fruit-trees plant-  
ed in the quarters, and in the borders which divided  
these quarters, where kitchen-stuff was sown or plant-  
ed. Time and experience shewed this practice to be  
wrong, for these trees soon overshadowed the ground,  
the crops thereby failed, and the ground under the sha-  
dow of these trees became useless for any purpose. This  
inconvenience introduced into our *British* kitchen-gar-  
dens the method of planting fruit-trees upon espaliers or  
trelaces, whereby kitchen crops have free and open air  
to grow, and have the benefit at the same time of be-  
ing protected from wind and weather, by these espa-  
liers or hedges of fruit-trees, which, when trained up  
in standards, destroyed them entirely.

*Espaliers.*

*Espaliers.*

**A**N espalier is a trelace of wood fastened in the ground, to which the branches of fruit-trees are fastened in a horizontal position, in such a manner as the sun and air may get at them to ripen their fruits, and that their branches may not incumber or overshadow such crops as are sown near them. They are commonly planted to surround the quarters of the kitchen-garden, and have this effect, to make this garden equal the beauties of the flower or pleasure-garden. In spring they delight us with their fine blossoms, and nothing can be more entertaining than the noble fruits in autumn, with which their branches are loaded.

It has been practised to have apples for espaliers grafted upon paradise stocks: But this I would never advise, because such trees are of no duration. The inducement for this method was, that these trees take up a small space of ground, and always grow dwarfish, which in small gardens, where there is not space enough for large quarters, is a considerable advantage. In such small gardens it may do; but for large gardens, apples grafted upon codling Stocks, or upon the Dutch paradise, or Bittern Stock, are to be preferred; they will not grow so luxuriant as apples grafted upon crab or free stocks, and will bear sooner, and are much more under command of the proprietor. It will be necessary, that trees of an equal growth be planted together, for there are some trees which require to be planted at twenty and twenty-four feet distance, tree from tree, and will spire up in spite of all checks of the knife, whilst others require only fourteen feet distance, tree from tree, and are naturally of an humbler growth. This caution is necessary for the sake of regularity and beauty. I have already shewn the breadth of the walks in those large gardens; in gardens of an acre or two of compass, they may be narrower; but I would never advise them to be under fourteen feet broad, and the sun and air may have free passage to ripen the fruits upon the espaliers, and give them a fine flavour

flavour and taste, which can never be attained, if the walks are narrow, or where the trees are planted too close.

Espalier trees ought to be planted in parallel rows conformable to the walls of the garden, so as to form right angles, were they to join; in the dispositions of which walls, (before described) I had a particular view to the espaliers, that they should have good aspects, to enjoy the morning and evening-rays of the sun, which is a matter of great consequence, to have their several fruits duly ripened and well flavoured.

The sorts of apples for an espalier, are the royal codling, the fulwoods, redstraiks, leedingtons, yellow and gray, pearmain courpendues, strawberry apple, aromatick pippen, Wheeler's ruffet, Pile's ruffet; and on South-east exposures, the golden pippen, nonpareille, *Holland* pippin, *French* pippen, and gogar pippens. The pears should be summer and autumn fruits, for the later sorts will not ripen upon espaliers; and many cherries will produce excellent fruit upon espaliers, especially, if they are grafted or budded upon the bird or cornish cherry. Here too the heart cherries fruit much better than upon walls. Pears should be planted at twenty-five feet distance, tree from tree, and for some of the largest shooters, thirty feet distance, which suits them better than thicker planting; for of all sorts of fruit, a pear hates the discipline of a knife at the extremities of its branches, where the first fruit appears. By allowing nature its full liberty, in time the whole branch pushes out cursors or spurs, upon which are the fruit-buds; but if nature be stopt whilst she exerts herself in the random production of side branches, the crops never come to perfection. The only work necessary for a pear-tree, is to lay its branches horizontally, which will, in some measure, curb the wantonness of a strong soil and a too luxuriant tree; a method much better than pinching and shortening branches, as is too often the practice amongst ignorant people.

So soon as the borders of your garden are well prepared by digging; if your ground is dry, plant apples,  
pears,

pears, plums, and cherries in *October*, that they may strike root before the severity of the winter comes on; and I would lay turf with the grassy side downwards, or failing of that, some mulchy stuff, to protect their tender roots from frosts; nor should it be removed before *August* following, when it may be dug into the ground in the borders, when your trees will have struck good roots, so as to be in no danger from a too dry season, or light frosts. But if your ground is wet, you must delay planting your trees until the end of *February* or *March*, observing to lay turf or mulch on them, in the same manner, that they may not suffer by dry weather, and the hot rays of the sun.

It will be needless to make your espalier or trelace until the third year after planting; in the mean time, it will be proper to fix small stakes by the trees to lay in their branches horizontally as they are produced, which will save a great deal of trouble when they are fit to be fixed to the espalier. For this purpose I prefer ash poles well seasoned and dried. The ends of them which are fixed in the ground, should be well pitched, and get a little touch of the fire, to make them endure the damps of the earth, by which means they will last a long time. The cross-stakes should be of good fir well-seasoned, and both the cross and uprights should be well coloured or painted, the uprights with a dark red or green colour, the cross rails with green, that their colour may be uniform with the leaves of the trees.

The uprights should be six, seven, or eight feet above the ground, and be placed at two feet distance, in a direct line from one another; the cross rails should be nailed to them at six inches distance from one another. Put two uprights at the side of each tree, but allow the main stem of the tree to be free from an upright behind it, observing to fasten the branches of the trees with lists of cloth, or ozier twigs, or some such easy binding, and to lay them in thin, in a horizontal position, suffering no branches to cross one another. For the largest fruits, seven inches distance, branch from branch; for the smaller sorts of fruit, six inches will

will be sufficient; and an espalier, thus managed, will endure a very long time. Upon an espalier of this sort, and upon the best exposed part thereof, you may plant some of the *Brussels* apricot, which, in a good soil, will prosper well. As I have already given directions concerning the pruning of these trees, when treating of wall-fruits, it is needless to repeat them here, the espalier prunings being much the same as that used to fruit-trees upon walls.

In a large garden, such as is here proposed, the quarters inclosed with the espalier, should not be less than three hundred feet square; or if an oblong, three hundred feet in length, and one hundred and fifty in breadth, as the ground will admit; and in smaller gardens one hundred feet square, whereby the kitchen-herbs will have liberty to grow well, and have a free air; if the quarters are less, the espaliers will be too much crowded, and both the fruit and the herbage in the quarters being pent up in the narrow spaces, will suffer for want of air to nourish them. Always chuse young trees for espaliers, not grafted above two years, and observe not to plant them above two inches deep in the ground below the graft; at that time head them down to four eyes above the graft, and plant trees of one kind of growth, by themselves, so as to make the espaliers quite regular; free shooters of pears and apples, and small shooters of each, also by themselves: Neither will it be proper to mix apples and pears with one another, nor any other sort of fruit, but to plant each sort by themselves. And it will be very proper that all tall growers be planted by themselves, and middling and dwarfish growers in like manner. In the middle of the quarters may be small espaliers for currants, and borders for gooseberries, provided always that the kitchen-crops be not crowded thereby, which would be of very bad consequence.

The currants I would chuse, are the *Dutch* red and white, and the large black, if desired, for there are many persons who are not fond of them; but they make a fine compot in jelly, though they are  
not

not very agreeable when eaten otherwise: All these are propagated by cuttings. The gooseberries I would chuse are the great chrystal, the large oblong yellow, the campaign or smooth black, the green galcoigne, the large oval red, and the hairy red gooseberry; all which are propagated by cuttings in *February*, and not by suckers. Be careful to take the cuttings from good bearing branches, which you may mark when the fruit is upon them, for these will be more fruitful than any others. These cuttings should be seven or nine inches long, and should be planted four inches deep in a good light fresh earth, where they should be watered, which will make them take root soon, and when they put out shoots, be careful to rub off all under-shoots, leaving the uppermost and strongest to form regular stems; but observe that these shoots should not be taken all away at once, and suffer none to grow lower than one foot and a half from the ground; for if you leave a naked stem too high, it will not be able to sustain the head with its fruit.

From this cutting Bed they may be removed in *October* following; for which purpose prepare a nursery-bed of the same sort of earth, well dug and cleared from all weeds, then trim their roots, cut off the side-branches, and plant them three feet distance, row from row, and one foot and a half distance, plant from plant. Here they may continue two years, keeping the ground clear from weeds, and digging it once every year betwixt the rows, observing to cut out from their heads all such branches as cross or interlace one with another, and to keep them open in the middle, that the sun and air may, by this means, have free access to ripen the fruit kindly.

These plants should never be suffered to remain more than two years in the nursery bed, and ought in *October* to be removed to the borders or places drest on purpose for them in the garden, where they are to remain: If on borders, they should be planted eight feet asunder; if on a spot of ground allotted for that purpose, they may be planted in rows ten feet asunder,  
row

row from row, and seven feet asunder, plant from plant, trimming their roots, rubbing off all lateral branches, and pruning their longest branches with a knife to ten inches long, observing to cut always behind a leaf bud; but never use garden sheers for pruning gooseberry bushes, so as they may form a regular head, which will crowd the bush with so many branches, that what fruit they produce will be small and ill-tasted. Be sure to thin their heads every year from a multiplicity of branches, which will make your fruit excellent; and once every two years give them a good quantity of rotted dung. When the fruit is off, prune their heads, and betwixt the rows plant coleworts, which will stand the winter well, and will be off before the gooseberries bud in the spring. There is another method used with gooseberries in some gardens when they are planted upon borders, and with good success, which is, training them up in the shape of a fan, by which means they spread all at the sides, and are thin, and the fruit ripens very well; but as they are close pruned on two sides, you must allow them the space of twelve feet distance upon the other two sides, and take care not to plant any gooseberries under the drip of trees.

Currants are propagated in the same manner as gooseberries, but they may be planted against walls or low espaliers. If they are planted on a South-east wall, they will ripen very early; if on a North-wall, the fruit will continue good until *September*. But to either of these I would prefer their being planted on espaliers five feet high above the ground. The plants may be set at eight feet distance, plant from plant, and their branches trained in, as much as can be, in a horizontal position. They bear upon two years old wood, and upon snags or spurs; so that, in pruning them, you must be careful to preserve these snags, and to keep their branches thin, and shortened to three or four eyes above one year's wood. They delight in an open exposure; for although they will produce fruit under the shade of trees, yet it has always a very bad taste. They prof-

per better upon a light dry soil, than upon moist ground. Every three years, the borders upon the espaliers of currants should have some old rotted dung put into them, should be dug once every year, and be kept clear from all weeds, otherwise they will stunt, and their fruits will blight, and come to nothing.



*Hot-beds of all Kinds, and Pine-Apple Stoves.*

HAVING thus given my directions for the espaliers, and the fruits planted thereon, I proceed to give my practice for the melonry, hot-beds, the framing I would have there, and likewise the culture of the pine-apple, of my method of erecting stoves for that purpose, of hot-beds, and their productions through the whole year, in winter, as well as in summer; also for very early crops of small fallading, kidney-beans, asparagus, pease, &c.

I have read, in many authors, long dissertations upon the dispositions of a melonry, or melon ground, but am not pleased with any of them, for many reasons, but one especially, which is, the successive trouble, expence and labour, arising from the wheeling dung to this place in the kitchen-garden, whereby your garden, which should be neat in all respects, often looks like a dunghill. The methods will indeed answer; and the above objection to many appears trifling. I, however, have differed in practice, and will here take the liberty to give my own, in which I had most extraordinary success. Although I may differ from authors who have wrote before me on this subject, I have this good excuse, that I write for the climate of the Northern parts of *Britain*.

For winter framing, that is, for asparagus, kidney-beans, pease, and the earliest cucumbers on hot-beds, I paled in a small piece of ground with old ship plank, just by the dunghill. This inclosure I made quite fenceable, and had here all my winter framing, which, I  
am

am sure, was better than in the garden, where, by the constant wheeling of dung at that season of the year, the ground must have looked very unseemly, and the frequent repair to my hot-beds must be a continued scene of dirt and dung, which, in a neat kitchen-garden, should always be avoided.

In summer, I indeed have had cucumbers and melons in the kitchen garden; but as, at that season, the verdure of the beds, either under bells or frames, adorn the place, I brought them there as ornaments, to add to the beauty of that gay florid season of the year.

As above said, I inclosed a piece of ground by the dunghill, with good old ship plank, ten feet high the North planks, descending gradually to six feet high the South. The extent of this ground was sixty feet broad, and one hundred feet in length. I had there my winter framing; and upon the South-aspected plank walls, I had early fruits, under glasses, by the means of hot-dung applied to the back of the plank, which I shall take notice of, when I have finished my directions as to the framing work.

The first beds I set to work was for mushrooms to furnish the table in winter; and for this reason I made my beds the end of *August*, by which means I had good mushrooms all the winter, if very intense and extreme frosts did not happen. The beds are made in the following manner:

Dig a trench in the ground three feet wide, one foot deep, and what length you please; but if your soil is moist, let your bed be quite above ground; then take horse dung, shake all the litter out, and lay it in a heap to sweat and ferment for ten or twelve days; or lay it abroadth, till little or no heat remains in it, for great heat destroys the spawn of mushrooms. So soon as you perceive the heat gone off, fill the trench with the dung near one foot above the surface of the adjacent earth; above that lay ten inches of fresh, light and rich earth; and observe to cover the sides of the dung bed with the same earth, and as much of the earth you have gathered from the fields with the mushroom

spawn upon the sides, as can be, and then take some of the spawn, and plant the small knobs of it six inches asunder, half an inch deep into the earth; then take another layer of dung, lay it ten inches thick, and above that, another layer of the rich light earth, and the field earth on the sides eight inches thick; observing, as you lay the stratum of earth and dung, to draw in the sides narrower, so as to make the bed ascend gradually in form of a ridge, and still drawing it narrower and narrower, till you arrive at the top, and in such a manner as the knobs of the spawn may not be put into, or buried in the earth deeper than half an inch, planting the knobs all the way up, by which means you may have four layers of dung, and as many of earth, from the bottom of this bed or ridge, to the top. When your bed is thus made and planted, lay good wheat-straw, or loose litter half a foot or more thick; and as the cold increases, you may cover to twelve inches thick with this straw or litter, to prevent the injuries of frost; it also prevents the earth from drying too fast, and prevents too much rain from getting to the beds, for too much moisture, or too much drought, are both prejudicial to mushrooms. And as all this bed must be quite covered over with the straw or litter, it will retain enough of vapour, which comes from the fermentation of the dung, to conduce to the growth of the mushrooms, whereby a regular moderation of wet and dry air will be preserved to produce plentiful crops.

When your bed has been thus made up and planted ten days, take off the litter with your hands, look and see if your mushrooms begin to appear; if they come black or brown, and long-shanked, then cut them off, and riddle a little of the fine earth upon them; and when they appear again, they will come up white, round, and fit for use: This is called purging of them, their first bad appearance being owing to too much heat in the dung, which should be avoided as much as possible.

When they are growing, it will be necessary to look them over once every day, I mean in *September*, (which is

is the chief season of their growth.) If you allow them to grow large, they will soon become too big for use, rot, and breed worms, and infect all the young spawn, or off-sets, near them; To prevent this, they require to be looked over and gathered once every day; in doing of which, pull them gently out of the ground, so that their stems be not left behind, which would canker and breed worms, and rot the spawn. In this operation, if any of the spawn comes up by pulling out the mushrooms that are fit for use, take it off gently, and plant it in again without bruising it, where it will soon take root, and fix itself to produce. Make another bed in the same manner the end of *September*.

There are some persons who make their mushroom-beds entirely of such dung as I have here directed, without laying stratum of earth above the dung, but only covering the sides of the dung with earth of the kind above directed, three or four inches thick. This method I also approve of, and have seen plentiful crops upon such beds; but when this method is followed, always put four inches thick of good dry litter or straw betwixt the earth laid on the sides of the beds, and the dung, which prevents the earth from caking or cracking into rents, which it is apt to do, from the heat and fermenting of the dung: And on the top of the straw, which immediately covers the mushroom-bed, put some warm litter from the stable, or from a dung-heap, in this cold season, but do not put this litter immediately upon the mushroom-bed, but upon the straw which covers it; this warm litter will promote the growth of the mushrooms. If the frost continues, and the warm litter cools, add some fresh warm litter to the straw covering. Make new beds for mushrooms no later than the end of *September*.

Such beds, if duly attended to, will last several months, and produce great crops; and as the mushrooms for use grow, so will the spawn, which ought also to be laid up in a dry warm place, until the season for using it. The spawn will keep four months: so that if in *May* you give up your bedding for mushrooms, the

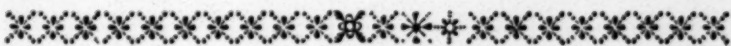
spawn, or small off-sets, altho' no bigger than pin-heads, will keep until *September* following amongst their earth in which they grow, and even until *October* or *November*, in places warm and dry. But I always make my mushroom-beds in *August* and *September*.

In very severe frosts, or great rains, observe to increase the straw-coverings; and in great storms I have sometimes laid boards, such as old doors, or some such, upon the straw, so as to rest gently against the sides of the beds, but not to bruise the mushrooms, or lie too heavy on them.

Mushroom spawn is the small off-sets, which are found about the mushroom roots; and the smaller they are, so much the better, provided they are round, knobby, and white, for this is the best form of the Champignon or true mushroom. What sorts come up brownish coloured, with long stalks and flat heads, are bad, and are a sort of *fungus*, which, with care, may be improved, as I directed when treating of purging of mushrooms; but if, by the method proposed, they do not alter their forms, they should be quite pulled out of the bed and rejected: By continuing the forcing of mushrooms, you may have them good until the months of *April* or *May*. If, when you set down your mushrooms in *August*, in *Sept.* or *Oct.* or even later in winter, they do not produce mushrooms immediately, you must not destroy the beds at that time, because they do not then produce: Let them remain all winter covered with straw, to protect them from frost; and in the month, probably of *March*, but most certainly in *April*, *May*, and *June*, you will have a most plentiful crop of mushrooms.

I shall mention another method of raising mushrooms. About the end of *Feb.* lay old rotted dung in the kitchen-garden, in a trench nine inches deep, and six feet in breadth; fill up the same, and tread it well down, and upon the dung lay some earth, taken, in *October* preceding, from a pasture where mushrooms grow in plenty; and therewith cover your dung five inches thick, tread the same as hard as you can, and make

make this bed level, or very near level; keep it clear from weeds, and in *May* they will begin to appear; if they come up black, take some very thin turf of the said mushroom-pasture, half an inch thick only, and tread the same down on the bed, and this will purge them, and make them come up well coloured. This bed will continue in good condition for two years; thus you may have them in the kitchen-garden, and not in your inclosure for early hot-bed work, which, as before-mentioned, I would chuse to have near the dunghill. Beds thus made up for mushrooms, are better for table-use than those which are gathered in the fields.



*Asparagus on Hot-beds.*

I Shall now treat of forcing asparagus, which, by proper management, may be had fit for the table from the beginning of *December*, until they grow in the natural ground. In treating of this subject I shall be very particular, because I have seen it practised in this country with very bad success, owing to the ignorance of people, who pretend to do what they have only heard of, or possibly read in some book, published by persons who never used the methods to obtain good asparagus in this manner themselves. I recommend my own practice, and will venture to affirm, I have had as good in winter, as any that ever came to *Covent-Garden* market for sale, or was produced any where in *England*.

The roots which are fit for forcing, are such as have been sown in your own garden; for what you buy elsewhere are not to be depended upon. These roots should be planted out, according to the directions I shall give, when I treat of asparagus in the natural ground the first year after sowing; and as they are planted on purpose for forcing, they should have a moist, rich, low ground, which will give excellent roots for hot-beds. They should be four years old before you use them for forcing, and they should be such,  
whose

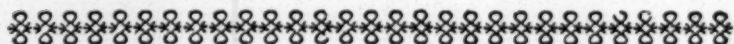
whose grass has never been cut, whereby their roots will be strong, and fit for this purpose, and their stalks twice as large as what comes up from old roots, whose stalks have been annually cut from the natural ground for kitchen use. This is therefore particularly to be observed, if you would have large asparagus under forcing frames, the neglecting of which has disappointed many of good crops, especially those who bring them to market for sale; when, instead of strong heads, their crops were not much larger than wheat-straws. Wherefore you must always use virgin-grass, and such as has never been cut.

Having provided yourself with good roots, before you intend to force asparagus, get a good quantity of new horse-dung from the stables, and lay it up with the litter to heat, ferment and sweeten for eight or ten days, mixing the litter with the dung. Then dig a trench one foot and a half deep, in breadth and length according to the dimensions of the frames with which you are to cover your beds; work your dung well, and lay it level four or five feet thick, and pressing it even with a fork; cover it with four inches of good rich moist mould, mixed with a fifth part of whitish or yellowish loam; then raise small ridges near two inches high above the surface of this mould, upon which lay your asparagus roots, very close to one another, filling up the spaces betwixt the roots with the same rich earth, and cover them with two inches thereof above the tops of the buds of their roots, but put no frames nor glasses upon this bed at this time, which framing method, though commonly practised, is very wrong; for this reason, that the heat of the sun's rays shining through the glass, would hurry the grass up before their roots had struck sufficiently into the earth, to maintain their stalks above ground; and this makes them small, ill-tasted, and worse coloured. However, the bed should every evening, but especially in the day-time, in frosts, be covered with one or two mats, and if that is not sufficient to preserve them from frost, put a cover of dry wheat-straw over all, and round the sides of the bed lay

lay some clay, to cover the side and end-roots of the asparagus. In a fortnight after the bed is set to work, examine it, and if you perceive the buds of the grass above the two-inch cover of earth, lay on two inches more; and if in ten days they shall push above this last cover, lay then on two inches more of the same earth, and then, and not till then, put on the frames with the glasses. It will be proper, when you plant the roots, to have two or three pieces of wood, two feet in length, thrust quite down into the dung, whereby you can know, by pulling them out and feeling them, what temper your bed is in, and by no means neglect this; for if the heat of your bed declines, you must give it a lining of dung all round, by taking away some of the old, and adding new dung, which will soon revive the heat of the bed. In putting on the frames and glasses, observe the following particulars: Make two straw ropes, five or six inches thick, and as long as to go quite round your bed; fasten this with straight sticks two feet long, all round the sides of the bed, so that the upper part of the ropes may be equal with the surface of the earth, on the top of the bed; upon this set your frames, and put on the glasses, covering them with mats and straw all night; but in the day-time take all coverings away, and suffer the sun to shine through the glasses, which will give a good colour to the grass, but take care not to open the glasses in frosty weather; when the weather is mild and open, and the top of the grass is two or three inches long, and near ready for cutting, (which ought always to be cut an inch or more below the surface of the earth) neglect no opportunity to give them air, by pulling up the glasses: this alone will give them a fine colour. In five weeks after setting this bed to work, you may cut good grass, though some persons pretend to cut in less time, which I own may be effected, but you must observe, such asparagus will not be so large, nor so well coloured.

The using of roots, whose buds have not been cut, will give larger buds, and by far a more plentiful crop, than if you use roots whose buds have been cut for use  
in

in the natural ground; and it was to obtain large buds of asparagus that I preferred these virgin-roots to any others. A bed of three good lights will produce you 900 or 1000 good asparagus, and by this means you may have a succession of them until *April*, when they come in from the natural earth.



*Early Cucumbers.*

THE next crop, in the forcing way, I shall treat of, is cucumbers; and the early prickly cucumber is the best to use for this purpose. In making the beds, and in managing the plants, so as to have the fruit large and fit for use in *February*, or in the beginning of *March*, being the desire of most gardeners, I shall be very particular in my directions, as they agree with my own practice in this matter. I own that, had it not been the curiosity to have fine large green cucumbers at such an unusual season of the year as *February*, or the beginning of *March*, I should not have given myself the trouble which must attend such early productions; but that, joined to a passion to be equal in perfection with the more southern climates of this island, induced me to undertake the bringing cucumbers so early to perfection, in which I succeeded beyond expectation, and could be excelled by no *British* gardener whatever.

Of cucumber-seeds, the early prickly kind is the best; and if it is two or three years old, and has been well kept, it will be better than if it is of the preceding year's growth. If the seed be soft, put it into your breeches pocket, and wear it there for a month or six weeks; this method is better than drying it in the sun, or before the fire; for in this way it will be kept quite dry, and the superabundant moisture of this, and all other cool seeds, will be better cured than any other way. This method of drying these seeds is more necessary than most people apprehend, to make the  
vines

vines of the seedling plants short, soon and well ripened, and to render them fruitful. So soon as you perceive your seeds in a right temper for sowing, that is, when they are quite dry, and the outward coat of their vessels entirely free from that clammy substance which they often have; then prepare your dung for a bed for them. This I always did about the tenth, or at farthest the middle of *November*, although some persons think *January* soon enough; but from experience, I had plants more fit for bearing, and better crops, from plants sown in *November*, than ever I could obtain from plants sown in *January*. Besides my experience in this article, it is certain, that when these cucumbers sown in *November* are well attended, and in health, their vines are more mature and stronger than those which are sown in *January*; and by being well ripened and strong, surely one may expect a better crop than can be had from plants but six weeks old, which being hurried on by heat, are weak and tender; whereas the *November* plants are flocky, thick, and their vines arrived at that maturity to produce good fruit, and very early. These reasons induced me to sow my cucumber-seeds always about the 12th of *November*. Your cucumber-seeds being in good condition for sowing, prepare some good horse dung, and lay the same, litter and all, as it comes from the stable, in a large heap, to heat and ferment for ten or twelve days before you use it.

When the first extremity of the heat is over, take one of your smallest frames, or, for want of this, two large bell-glasses; lay the dung towards the south-edge of the heap level, cover the same with the following sort of earth, taken off an old melon-bed, four barrows ful, of good rich virgin-earth two barrows ful, and of yellow loam and white sand one barrow ful; taking care that this compost be well mixed and incorporated a year before you use it for this, or any melon or cucumber-bed use. In the centre of the glasses or frame, make a small pit as broad as a large hand, and in this put your cucumber-seeds, two days after the earth is heated,

heated, observing to cover the whole surface of the dung with this earth, three inches thick all over the bells or frame, covering the seeds with half an inch of the mould; in bad weather, and at night, cover the frame or glasses with matts and litter. In five or six days, if the dung is in good temper, the plants will appear. After they appear, if the earth is dry, and they begin to spire up (as is often the case) give them very gentle waterings from a bottle, which has been sunk with the water into the dung, to temper the cold water, and to make it of the same heat with the air in which these young plants breathe, and earth them up almost to their seed-leaves, which will strengthen their weak stalks wonderfully. If your plants are under bells, so soon as you take the litter and matts from them in the morning, take off the bell-glass which will be wet, and put a dry one upon them, to prevent the drops of moisture which are upon the glass, occasioned by the steam of the dung, from falling upon the young plants, than which nothing is more injurious to them. If you use a frame and glass-covers to raise these plants in, you must observe the following method, without which your success will be very uncertain. Make a frame exactly the breadth and length of your hot-bed, of the same sort as the stretching frames upon which canvas is put for pictures, so as to fit the inside of the hot-bed frame, and to lie just under the glass. Upon this frame should be nailed all round the edges of it, some light-coloured bays, or coarse flannel, the coarser the better, in the same manner as fire-screens are done, with a list of tape round the edges, to prevent the nails from tearing the flannel or bays. These shutters should be taken out every morning, and dried before a fire, that they may be ready against night to put in again below the glass, and you may have a dry one in the morning to put in, instead of the wet one you took out. For in cloudy, wet, foggy weather, it will be necessary to use them, even in the day, as well as at nights, their use being to imbibe all the moisture which arises from the bed and which otherwise would fall from the glasses

glasses upon the young plants, and quite kill them, as I have often seen and experienced. If you have two sets of these flannel frames, so much the better, one for day-time in cloudy, moist weather, and another for the night, at all times, for these early plants. By this means, the rancid vapours, which constantly arise from dung hot-beds, will be imbibed by the flannel shutters, and will never condense upon the glass-frame, or fall upon the plants; and by this means these early plants, when young, or when in fruit, will be always kept in good health.

Having thus prepared your frames and woollen shutters, and your plants being now above ground; prepare another bed of dung, with one light, in the same manner as you did the first, making it three feet thick of dung, that it may keep the heat long, until the plants are fit to be planted in baskets. Cover this bed with the before-mentioned earth, five or six inches thick, two days before you plant, and put on it a frame and glass; and when you perceive it to be in a right temperament of warmth, and that the first violent heat is over, prick your young plants therein at three inches distance, plant from plant, setting them up to the seed-leaves in the earth, and covering them from the rays of the sun, until you perceive them growing, which is a sure indication that they have struck new roots, and this they will do in three days time.

What water you give, let it be little at a time, and it should be put into the bed a day before you use it, that it may be of the same temperature of heat with the air in which these young plants live. It will also be necessary in mild weather to give them air, which you may do by lifting up the glass on a brick laid edge-ways; but at the same time lay a matt on the front of the glass so raised, that the air may not rush in upon these tender plants all at once, but gently transpire to them through the openings of the matt. Remember at night to cover the glass with matts and straw above all, and neglect not to use your woollen shutters always at night, and in cold damp wet days. If you  
perceive

perceive the heat in your bed to be too violent, thrust in three or four poles two feet long for a day into the outsides of the dung, then pull them out, and let these holes remain open until you perceive the heat abate; if the warmth declines too much, stop up these holes again with fresh dung and litter, and it will soon recover its heat; but if it does not recover, then take away the old dung, and line the bed all round the outsides (as the gardeners term it) with new dung, which will certainly bring the bed again to a new fermentation, fit to make the plants grow kindly.

In about three weeks time these plants will begin to put out their rough leaves, at which time make up another bed broad as the former, and long enough to have a bed of two large lights upon it. Then provide yourself with loose wrought ozier baskets eight inches diameter, and six inches deep, with two small handles to each. When the bed is made, place your baskets in it, filling them with the compost earth almost to the brim, and sink them three inches into the dung, close to, or within an inch or two of one another; fill up the spaces betwixt their sides with good rich mould. In four or five days, the earth in the baskets, by the heat of the dung below, will be of a good temper to receive the plants, which then transplant from the bed, wherein they were nursed, into the baskets, six into each basket, in the decline of the sun, and when it is gone off the bed; fix the mould gently to them, setting them in the earth up to their seed-leaves, and give them a gentle refreshment of water; cover them up at nights with matts above, and the woollen shutters below the glasses, and do not suffer the plants to have the sunshine upon them until a week after they are planted. Cover the outsides of the bed with earth to keep in the steam of the dung, lest the vapours, or the steam of the hot dung, should blight the young plants. In the day-time raise the glasses and give them air; for a blast of rancid dung-steam will destroy a whole crop of those early cucumber plants. In about three weeks, if the bed has been in good temperament, the  
plants

plants will have made good progress, they will have run near the edges of the baskets, have shewn their male blossoms, and will begin to set fruit : delay not then to make a fresh hot-bed with great care, turning the dung well, leaving no clods, and mixing the dung and litter with some small coal ashes, which is of great service to preserve the heat long and moderate in the beds. When your bed is made up, and in good temper to receive the baskets, pull out three of the weakest plants, allowing three of the most forward and strongest only to remain, and setting the baskets upon this bed (which should be made to have three good lights or glass-frames) place the basket with the plants in the centre of each light, covering the glass at night above with matts, and woollen shutters below, and by the renewal of good heat, the fruit will swell in three weeks to be fit for use. At this time neglect no opportunity to give them air, and good waterings whenever they require it. If the runners spread beyond the edge of the baskets, suffer them to run at pleasure, and never offer to pinch or top them at any rate. Give the baskets also new earth two days after they are set into this bed quite up to the top, which will be of great service to the plants ; and with this management, by the end of *February* and beginning of *March*, I have had as fine large cucumbers for slicing, as ever I saw of the same kind (the early prickly, I mean) in this country, in *May* or *June* under frames.

I have often observed, that, notwithstanding all care and heat that can be given, these early cucumber plants are not apt to produce fruit of any bigness, as they drop off before they arrive to a proper size, to remedy which, I tried the following experiment with great success. Put into the ridges or baskets some more plants than what you have use for, and upon those on which you are to try the experiment, whenever you observe a fruit set, and the flower on its top opening, and that the fruit does not swell fast, take a male blossom, clip off its top until you come to its eye, then put the eye of the male flower into the funnel of the female

female flower, and put it quite down into it, so as the eye of the male and the eye of the female flowers may touch one another, and be close joined; then tie a piece of bass-mat over the female flower, so as no air can get in to hinder the flowers from uniting; when you have done this cut off all the other vines from the plant, and pinch the vine upon which this fruit is, two joints above the fruit, and in two days you will perceive the fruit to swell fast, then cut away the piece of bass, and let it drop off at pleasure. In the mean time you must be sure to keep up the heat of the bed.

When the season comes in warm, and your plants are slow in putting forth fruit, use this experiment, pinch the vine above the fruit, and take off what runners are on it, excepting that upon which the fruit is whereon you make your experiment.

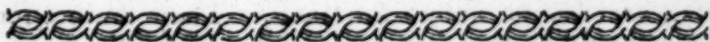
Some persons may possibly blame me for directing them to set down hot-beds so soon as *November* for raising early cucumbers, alledging, that *January* is soon enough. But, besides the experience I have had, they will certainly find, that when they are raised in the month of *November*, the plants are older, and their vines are more fit and better ripened to nourish and produce good large handsome fruit, than vines which are the produce of plants hurried on by artificial heat, to bear fruit in two months from their being sown: For you have greater reason to expect good fruit from a vine or branch of a plant which is solid, and the texture firm, than from a vine which is but forming itself, and is a mere blob of water.

As these cucumbers, which are forced so early into fruit, require to be often transplanted, I chose always to perform this work about three in the afternoon; but about eight in the morning of that day, I gave them water in order that the earth about their roots might be fixed to them, and that the plants might be raised with a clump of earth about their tender roots, by which means all the fibres of their roots are well preserved, and they cannot suffer any check in their growth by being transplanted, where such caution is used.

Some

Some have these plants upon iron trelaces, instead of baskets ; I have tried both methods, but always found them succeed best in baskets ; and I further observed, that the glass-frames should not be made of lead and glass, but in the way of sash lights, but no cross bars which might stop the steam of the bed from running to the bottom of the glasses ; which steam, by the interruption of those cross bars, would have dropt on the young plants, and have entirely killed them.

I have also raised early melons, but did not set about that work until the end of *January*, or in the first ten days of *February*. I had likewise hot-beds for early peas and kidney-beans, which, in mild winters, were fit for the table in *March*, or the beginning of *April*. The pease I used for this production, were Leadman's prolifick dwarfs, as being better than any others to be kept in framing ; the dwarf sugar pease may be also used in these frames with great success. The method to have them is thus :



*Pease upon Hot-beds.*

**S**OW these pease near a well exposed South wall about the 24th of *September* ; put the seeds into the ground very near the wall ; whenever you observe them peeping through the ground, cover them over with an inch of earth, as they advance ; in frost cover them with great pease haulm, wheat straw, or whatever cover will best keep off the frost ; ferns, if you can get them, will do, if they be dry. About the end of *January*, the pease (if the winter has been mild) will be some inches above ground, and then it will be proper to make a hot-bed for them in the manner as was directed for cucumbers ; but in this bed the dung may be only two feet thick, for they require less heat to bring them on than cucumbers do.

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When you observe the dung fit for use, make it up into a hot-bed four feet broad, and as long as you have framing ; level the same well, and cover the dung with ten inches of light virgin earth ; put on your frames with their glasses, and in the day time raise the glasses, to allow the steam to pass off ; when you perceive the bed in a moderate temperature of warmth, lift the pease with a trowel, with a ball of earth to their roots, and plant them in the earth fourteen inches distance, row from row, and four inches, plant from plant ; which distances will make them bear better than if they were planted thicker. Give them at planting a moderate watering, but afterwards be very sparing of it, for much water makes them grow to straw, and have little fruit : You must also take care to shade the beds from eleven forenoon, until the sun is near off, and at the same time give them air in mild weather, and cover the dung which surrounds these beds with earth, that when the glasses are raised to give air to the pease, they be not blighted by the rancid steam of the dung near to, or about the beds. These frames for pease should be two feet high in the back, sloping to fifteen inches in front.

I raised the dwarf *Battersey* and *Canterbury* kidney-beans the same way, with this difference only, that I was obliged to raise the beans in *December* or *January*, on a very moderate hot-bed, and never used any kinds for that purpose, but the dwarf *Battersey* or *Canterbury*, and fixed small sticks by them for their tendrils to climb upon ; I pinched the tendrils whenever I perceived them to run too much to vine, and not to blossom or fruit in proportion to their strength. These plants, in all moderate weather, must have a great deal of air given them, otherwise they will be suffocated, die away without any fruit, and rot. But by a due and nice management, I have had beans for the table by the 20th of *March*.

*Forcing*

*Forcing Fruit on Timber Walls.*

HAVING gone through the framing and hot-bed work, in my inclosure next the dunghill, I proceed to give some directions as to managing and bringing to ripeness such fruit as I planted upon paled walls, which I forced with dung laid at the back of these walls. This method I tried, before I built stoves or flues, for forcing fruit on the kitchen-garden walls. I laid up a good quantity of dung in a heap, as I did for my hot-beds; and when I perceived it in good temper, I applied it to the wooden walls five feet thick at bottom, sloping to two feet and a half thick at top, observing to lay it close to the wall with a fork, but not to tread it; and also to cover all the dung with thatch, so as it might keep the heat longer. This I did about the end of *February*, and covered my trees in front with glass. Whenever I observed them beginning to bud well, I gave them air by opening the glasses, and gave them considerably more of it than I did to the fruit on the flued walls: My reason was, that if the steam of the dung is pent up at the time of the bloom of the trees, the blossoms will fall off, and of course there will be little or no crop. This first parcel of dung will continue warm enough for five weeks, when a fresh parcel should be prepared, and put to the walls in the same manner; and you must keep the dung at work, until the fruit (which should be May-duke cherries, gooseberries, masculine apri-cocks, and red nutmeg peaches) are near ripe, or at their full bigness.

Upon the front borders you may have strawberries and some monthly roses: The strawberries should be planted on this front border the first week in *August*, before you design to force them, that they may have taken good root; be sure to keep them free from runners, that the plants may turn stocky, and fit for bearing before you apply your dung. It will also be proper that the frame, under which you have your forced

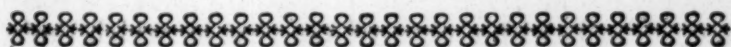
crops, should have a door at each end to admit the gardener, and to suffer air to come in to the plants and trees when the glasses in front cannot be raised or removed to let in air; especially when the trees are in blossom, which is absolutely necessary towards having plentiful and good crops. Since I am upon the subject of forcing strawberries, I shall shew the reader another method I used to have them early, *viz.* to plant them in pots twelve months before you force them, or in baskets; which baskets place on hot-beds until they ripen, as has been directed for cucumbers; but as few persons chuse to give themselves this trouble, I shall say no more of it. Observe that your trees upon these timber walls be pruned according to the directions laid down when treating of flued walls, two months at least before you lay in your dung to the wall for forcing them, and observe always to plant such trees, whose fruits, when forced, ripen at one and the same season, next to each other on this wall.

I have one thing very material to add here, which I omitted when treating of hot-walls, which will not be amiss now to insert; I mean directions with respect to renewing or giving new earth to vines, and the other fruits upon hot-walls, especially after forcing them; and when you design to force them again, as the earth, into which they were at first planted, may be supposed to have been exhausted, and to have lost much of its nutritive faculties.

For vines, the year before you are to force them a second time, prepare a good quantity of light virgin earth; add to this a fifth part of very old well-rotted hot-bed dung, and some good lime, and mix them well together, so as their parts may be well incorporated; if by this addition of new earth you perceive the borders in which they are planted may be too high within the forcing frames, take away five or six inches of the old mould, and lay this new compost to them in the Autumn before forcing them, which will give them fresh vigour; but observe that the compost be thoroughly

roughly mixed and incorporated twelve months at least before it is used.

For peaches and nectarines, or other fruits you intend to force, give them compost of fresh virgin earth of a good strong kitchen garden mould, but no lime; and if you have not virgin earth, give them a little well-rotted dung the Spring preceding their being forced; dig the dung well into their borders in the month of *June*, and continue this operation once every year before you force any part of your hot-wall, which adds fresh vigour to your trees under your frames in forcing seasons.



*Hot-beds in the kitchen-garden.*

**H**AVING done with giving directions as to the hot-beds I would have in the inclosure by the dunghill; I proceed to those hot-beds which should be in the kitchen-garden in the Spring and Summer months. The first I treat of shall be for propagating melons, I mean the musk melons, as most gentlemen are fond to have them: I own I should not have attempted to have treated of that subject, especially as there are some gardeners who understand their culture pretty well, and have had tolerable good success in this country, had I not been persuaded that they may yet be brought to greater perfection, by following the rules here laid down: And I shall endeavour to correct some mistakes which the *London* writers commit, not by ignorance, but by giving directions which may suit the propagation of this fruit in their climate, but will not do for the latitude of *Scotland*. This, I say, may serve for my apology, not only in this article, but for my undertaking this work.

*Of the Culture of Musk Melons.*

**A**MONGST the many varieties of melon seeds, which are annually imported here by our Seedsmen, they have got the seeds of the *Persian* melon, a fruit of which I have eat, but find it far inferior to the *Cantaleupe*, the *Genoa*, or the *Languedoc* melons; the first of which is undoubtedly preferable to any, and so much prized for its excellence, that in *Italy* it is called *Melone degli santi*, or *Melon of the Saints*. Gardeners ought to be very nice in preserving the best sorts of melons, and in keeping the seeds of the different sorts very distinct, with a note of the year in which those seeds were saved; this is particularly necessary. And as to the getting of them, this you may very readily from *Languedoc*, by giving commission to factors at *Bourdeaux* to employ those who deal that way to get proper seeds, which seeds ought to be four years old before you sow them; for by that Time all the superabundant Fluid with which they are filled will be evaporated; and, by Experience, I know you will have more fruit from a plant produced from a four years old seed, than you can expect from six Melon plants whose seeds have been saved one, or even two years before sowing. The method of making the hot-beds, and the manner of raising them from seeds, being much the same as that used with cucumbers, it is needless to be repeated here. But I seldom sowed for my general crop of melons before the end of *February*, for then your seed-beds will work well; and as the sun begins to have a kindly influence, you can give air in mild weather to the young plants, which is of great service to them. The frames in which these plants are raised may be about two feet square: When the young melon plants are fifteen days old, it will be proper to make another hot-bed of the same dimensions as the first; and whenever it is in a good temper, (which you will know by thrusting your finger down into the earth with which your bed is covered) prick them out at  
three

three inches distance, plant from plant, observing, as they spire up, to add earth to their long shanks, which will strengthen them much, and make them soon put out their rough leaf. The best compost I know for melons is thus made: Take two load of well-rotted old cows dung, two of fresh virgin earth, and two of yellow fat marle, mix all together, and let them lye one year at least before you use it; in Winter spread it to receive the benefit of the frost, and when you intend to use it, riddle it fine, being sure to break the clods of marle, especially if it happens to cake, as it is apt to do. Observe, when you transplant melons, to shade them from the sun, until you perceive that they have struck root, and give them moderate waterings; and in bright sun-shine cover the glasses with matts, and give them air in the day, but not at night. The best time to give water to these plants is about seven in the morning, from bottles which stand in the frames one day before it is used, that the water may be of the same temperature with the air in the beds which the plants feed upon. In this bed they may continue until they shew one, or at most two leaves, but no longer; you must observe precisely the following directions, to have high flavoured, large and well-tasted melons, especially the *Cantaleupe* sort, without which they can never be obtained in this country: Experience of many years taught me this, and I can safely recommend it as the only method to have those fruits in perfection. You must have four frames and glasses made about one foot square; and then lay out a square piece of ground in your melonry, well exposed to the morning and noon sun, of such size, that a large double frame with double glasses may cover it; the frame must have two glasses in front, and two glasses in the back, placed like unto the roof of a house, without any inner division within the frame, only a strong bar of wood through the middle to rest the glasses on, and a bar of wood betwixt each of the front and back glasses. This frame may be twelve feet square, conforming to the spot of ground,

ground, upon the corners of which set your small frames to the breadth and length of your large frame, which must cover this whole spot of ground in time, when the small frames are to be taken away, and the melon plants have filled the same frames.

When you have thus marked out your ground, at each corner make your beds, a little broader and longer than your small frames, that they may have space to rest on the dung, but do not at this time join these four small dung beds together, but leave as much space betwixt them as you can. When your four small beds are made up, and covered with the small frames, and in good temper to receive the young melon plants, make a hill in the middle of each of these four small beds, of the compost directed; upon which plant two young plants, and no more, (if of the *Cantaleupe* melon, one plant will do, for there they must stand for good) observing to shade, water, and cover them at night, as has been formerly directed. And here I must give a very necessary precaution to melon-men: When your four small beds are made, cover them with the frames for two or three days, but put no earth upon them until the excessive heat of the dung is gone; for if you were to cover these beds immediately with earth, the great heat would burn it, and thereby render it useless for melons, or for any purpose whatever. When you put on your earth, raise a hill thereof in the middle of each bed, eighteen inches high above the dung, in form of a flat cone, and plant one of your plants (if of the *Cantaleupe* melon) or two plants, if of any other sort of melons; and as the vines spread, lay on your earth along the bed, to the same height or depth of earth, for on the depth and goodness of this earth depend your crops; and I have often found, when plants have but six, eight or ten inches depth of soil to grow in, that the crops have been bad, and the plants to have died. Be sure to take care to give them air in mild weather, and carefully to wipe off the steam from the glasses in the morning. In two weeks after transplanting, they will show their third joint, the top  
of

of which you must pinch off with your fingers, to provoke the plants to send out lateral branches, which we call vines or runners; and three weeks after this, you will observe the vines will have grown to the foot of the hills on which the melons were planted, at which time lay your vines regular; and if they have but two vines, pinch their tops; but if you perceive a plant too viny, take off two or more of the smallest vines to the very stalk of the plant, and lay on as much of the compost earth as will make the surface of your beds of the same height with the hills on which your melons were planted; if you observe any of the beds decline in heat, add all around them some fresh dung and litter, which will recover the heat, and bring your plants on. In some time after this, the plants will begin to shew male, or what some erroneously call false blossoms, which you must not take away, for, from experience, it is certain, that those flowers are the male blossoms which impregnate the female blossoms, which always in melons and cucumbers grow at, and upon one end of the young fruits: When you observe the young fruits and their blossoms appearing, and that many of them turn yellow, or fall off, then is the precise time to assist Nature in this our cold climate, without which you cannot have good melons. Make ready your double frames for use; and if your small beds were made below the surface of the earth, take away that whole surface of earth in the open spaces betwixt the four small beds, and fill all with new dung to the very sides of your small frames, taking care that this new dung has been well managed and sweated to use for a hot-bed; then, after it has been well levelled, and made as high as the dung in the small beds is, cover all this new dung with the prescribed composed earth, eighteen inches deep; and in a temperate evening, having taken off your small frames, and ordered the vines, laying two or three inches of fresh compost earth below their vines, pulling out all weeds, taking out all useless leaves, or small useless runners, and giving them a gentle watering at the extremities of the vines, but not  
near

near the stems of the plants, then put your new double frames upon them; next morning wipe the glasses clean, raise them up if it is a good day, but shade the plants for one whole week after, that their leaves flag not by this addition of heat and alteration of air, until they are used to it for some days. By these double frames and double glasses, they will have double air, and double sun to what they had in the small frames, or to what melons commonly have in long single glazed frames. To this method of managing melons, in giving them a new heat, when Nature is exerting herself to form the young fruit, and the cold of our climate denies its assistance, I was obliged to have recourse, whereby I never failed to have an incredible crop of large fine well-tasted beautiful fair fruit; whilst others not so curious, or who would not bestow the same pains and expence, either lost their crops, or obtained by the care and trouble they had been at, at best but a scanty one.

That I may be understood when I write of double frames, I shall observe, that they are made so large as to contain the whole space of ground within them, whereon stand the four small frames I have mentioned, and that in such a manner, as that the plants which are in these four small frames may, when you put on this large double frame, be in the center of each of its glasses: It is called double, because it has glasses both to the south and north, whereby the plants have double sun, double air, and double the heat by reflection, than what they have in your common single frames which have glasses only fronting the south or south-east, and have no glasses fronting the opposite points, which all double frames have.

Your fruit, by the addition of heat and air, will soon set beyond the danger of miscarrying; but there are some necessary directions to be observed at this critical period, whereby these plants will set their fruit (especially the *Cantaloupe* melon) too freely than if they are not observed. I have advised pinching the ends of the plants, when they have got a third good joint, in  
order

order to obtain vines or runners; and when these runners have three or four joints, to pinch off their tops to force out more runners: But if the vines push out other vines upon this last pinching, pinch no more, for they will now shew fruit, at which time they ought carefully to be looked to. Make choice of one good, or at most two fruits on each runner, situated nearest the stem of the plant, such as have large pedicles or footstalks; pluck off all the fruit which appear upon the runner, and also pinch off the end of the runner at the third joint above the fruit; this will stop the sap in the runner, and make the fruit set immediately, beyond the hazard of going off, as is frequently the case when the vines are over-charged with fruit. I always observed never to allow these plants to have more than six or eight fruit upon one plant. This pinching of the main fruit-runners will encourage good working plants (as the gardeners call them) to send out small runners, which must be pinched off when they appear with their young fruit; this work must be carefully done, and the vines looked over, until the fruits left on the plants turn so large, as to draw all the sap of the plants to them: Lay tiles or blue scallie slates below your fruit; for if you suffer them to lie on the ground, they may rot; and when they begin to swell, turn them to the sun that they may ripen equally. Some of my readers may find fault with me for directing them to forbear pruning the vines of melons, or for not pinching or topping them much; but experience has taught me that such unmerciful knife-management is good for nothing, but to bring a confusion of vines to such a degree in your rampant growers, that plants have been thereby destroyed. It is time enough to use this knife-discipline when your fruit is past danger of going off, and even then use it with caution.

There is a method to set melons which are not apt to keep their fruit, which succeeds better than any I know, especially with the early fruit, *viz.* Whenever you perceive fruit appearing, and that it opens its female blossom (which are only upon the fruit) and that  
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it does not swell to your wish, take a male blossom, and cutting all its petals above the eye, thrust it into the female blossom, close to the fruit, and tie both together instantly, that no air get in to stop their uniting, then pinch the top of the vine whereon the fruit is, two joints above the fruit, and cut off the runners from that vine, but take off no more vines from the plant, unless it has more than three or four; if you keep up the heat, your fruit so used will swell in three days visibly, when you must cut off the base-tying, which you put about the male and female flowers, and it will drop at pleasure. This is a method for setting melons which never failed me. Observe to fix the eye of the male flower close to the eye of the female flower when you put it in.

If the vines of your melon plants over-run the length and breadth of your large frames, lift up the frames, and let them rest upon the bricks four inches high, suffering the vines to run out at pleasure, taking care always to peg down these vines, if they run far out, with forked sticks, to keep them from being broke with wind or otherwise: Observe also what water you give them now, that it be at the extremities, and not near the stems of the plants; they should never have it at this season, except in very hot and dry weather. If you are to eat your melons at home, let them be high in flavour before you cut them; do it also in the morning, and let the stalk seem as it were parting from the fruit before you cut. If the fruit is to be sent some distance before it is eaten, cut three days or so before it is ripe, and cut a foot of vine with it. When you cut melons for present use, cut only two inches of vine with them. By this method of cultivating melons, I always had great plenty, and very good fruit. Melons under bells will never do in *Scotland*; and as little under oiled paper; but cucumbers will, as shall hereafter be shown. The height of your frames in the middle should be two feet, sloping on both sides to eight inches, whereby the wet will fall off the glasses; and in these glasses, as well as in all others of hot-bed or stove-work, there should

should be no cross-bars, which prevent the water from without, and the steam of the beds within the glass from running down, to the great injury of the plants both in stoves and in hot-beds.

By this management, my first crop of melons was over by the middle of *July*; and as the vines are still fresh, healthy, and preparing to set out new runners, flowers and fruit; I then set about to try an experiment, which succeeded every year; to wit, to obtain a second good crop, so soon as the first melons were off. I took the vines all up, light by light, laid three inches of my new fresh compost earth upon their roots, and all over the bed; and after taking off their old rotted leaves, I laid them altogether down again in the same order, gave them a good watering or two; in warm days raised the glasses, and in cold nights covered them with mats; and by the end of *August* had in each light two pair of good melons past danger; these in the month of *September*, and until the middle of *October*, swelled well, and many of them were near as big as the first; but the sun failed in giving them ripeness and flavour: To remedy this, I cut the fruit about the 15th of *October*, with three feet of vine to them, and twisting them, I put them into pots filled with good mould, and plunged pots and all into a tan-bed in that stove, which was kept up to a moderate heat only, where the vines soon struck root, and the melons ripened to great perfection, and kept ripening to admiration in taste, flavour, and juice, until the middle of *December* following. This is an experiment worthy of the observation and trial of curious persons, who have such frames and stoves as I had, and people may prolong their melon season by such means, for many months together. I laid the melon fruits upon bricks, upon the top of the tan-beds to keep the fruit dry; and when this second crop was forming, I did not prune much, but was careful that, at that season, the fruit should not be too much incumbered with leaves, and gave them gentle waterings, until I found the fruit was of a considerable size; at that time I covered the glasses well

well at night, which had this good effect, to preserve the fruit from the injuries of the frosts, which often happen in *September* and *October* in this country.

I have seed of a melon which I sowed the first week in *April*; it is very curious, it never sets its fruit until three months after it has been sown, notwithstanding all heat and care applied to it; and then it swells, becomes very large, and continues green and very hard in the skin, and seems to part with its pedicle about the middle of *October*, still continuing green and hard. I had it amongst melon seeds from Monsieur *Rathgeb*, the Imperial Resident at *London*. I wrote to him about it, and he returned for answer, that it was the melon they used in *Italy* in winter. When it parts from its pedicle (as he writes) hang it up in a cool room free from frost, one by one in a net, and ten days before you use them bring them into the kitchen, or a room where a good fire is kept; there they will ripen well during the whole winter; the skin becomes thin, turns to a lemon yellow, and emits a very poignant odour, and they taste extremely pleasant. I made the experiment upon six of them, and they eat vastly well, and their seeds came up the year following in great plenty, and fruited well.

I never used frames to cucumbers, except the earliest sorts, for these continued to give me fruit until the plants fruited, which I raised under bell or hand-glasses, in the following manner, in the kitchen-garden, near the same spot of ground where I had the melon-beds, before treated of.

About the 15th or 20th of *April*, I dug holes in the melonry, in straight lines, four feet square, one foot deep below the surface of the earth, and six feet from one another; these holes I filled with horse-dung, prepared in the same manner as has been directed for hot-beds for melons, working them well, and laying one foot more of dung above the surface of the earth; I then covered them with the melon compost earth, twelve inches thick, and upon every one of these holes I put two bell-glasses: in three or four days after, when I perceived the heat in good temper for sowing, under every

every glass I put six or seven seeds, which in a few days appeared above ground. I took care to cover their stalks, as they spired up, with the compost earth, and by shading the glasses in the evenings with matts, and giving them as much water as was requisite, in a few weeks the plants grew strong, and were preparing to run; which when I perceived, I took out three of the weakest, and left four of the strongest plants under the bells; but before I pulled these plants from under the bells, I filled up the spaces, which I at first had left betwixt the holes, where I had sowed my cucumbers under the bell-glasses, with good hot dung, and wrought it well, covering it over with twelve inches of good compost earth, there planted my cucumbers which were taken from under the bells, and took care to water and shade them, and to matt them at night, until I perceived they were growing again. So soon as the plants under the bells, and these transplanted ones, put out runners, I took small forked sticks, and pegged them down to the earth, and as their runners grew longer, I pegged them down also, and put stones under the bells to allow the plants to run from under them when they had run so far as to go off the ridge, I laid new compost to the sides of it, as the runners grew in length one foot or more, that the vines might run, and their roots might have full liberty to play at pleasure. By this means I had great crops, and this is the only way to obtain them in plenty: for, it is observable, that, as far as the vines of cucumbers and melons run above ground, so far do their roots run below ground; and if their roots are cramped for want of good earth, they stunt (as the gardeners phrase it) and come to nothing; whereas, when you feed their roots with good fresh rich earth to run into, you will always have fine fruit, and plentiful crops, both for slicing, pickling, or for girkins, as the oil-men term them. There are some persons who sow their cucumbers amongst their colliflower-plants, sometimes in basons, and others do it upon hills of earth made up with lime. This method will do in good seasons, in sandy soils, and well sheltered

tered ground, provided they have the morning and forenoon sun; but the method I have prescribed, in regard to bells, is the surest and best, to have good cucumbers for most uses in this country.



*Tuberoses.*

**I** SHALL now treat of the culture of *Tuberoses*, which I own is against the Rule I laid down to myself at the beginning of this work, which was to write of nothing but fruits, or of kitchen-garden plants; yet, as these roots are planted in hot beds made of dung, not in tan-beds or in stove-work, but in the melonry, I thought it would not be disagreeable to say something of them here.

These roots come annually to *London* from *Genoa*, and from *London* we get them to *Edinburgh*, where most of the seedsmen in town sell them. I planted my *Tuberoses* at two seasons, viz. the first in *April*, and the latest in *May*. When my roots arrived, I prepared a hot-bed in the same manner as is directed for cucumbers, and covered it with a deep frame two feet and one half deep at the back, sloping to one foot in front, and covered the dung with eight inches of good rich light earth, the same as I used for hyacinths; taking from the roots all their old skins and withered fibres, and all their off-sets, I planted them in this earth two roots very near one another, in such a manner, as that the top of the bulbs were but just covered; for if they are planted deeper, they often fail. Betwixt these roots planted by pairs, I left a space of eight inches, that when they were fit to be potted, they might be lifted with a good ball of earth to each pair, for I put two roots always into one two-penny pot. I do not approve of planting them into pots when you put them upon the hot-bed, for the sides of the pot cramp and stunt their fibres, whereby they do not flower so well, as when they are planted in the earth, their fibres run  
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at pleasure, and form well, which makes them blossom strong.

Until they appeared above ground, I gave them a little water; but when they began to shew their flower stems, I gave it then in large quantities, and took care not to force them too much, whereby their flower stalks might be hurried up, and become too slender. I gave them air in mild weather by taking off the glasses, only covering them at night, or in very bad weather. When their flower stems were a foot and a half high, I placed by them small reeds, to which I gently tied the stems that they might not be broken with wind or other accidents: When the stems were as high as the glasses, I removed the glasses, and fixed hoops upon the frames, which I covered with matts. When I observed the bells of the flower to be well seen, and after they had opened the tunicle or thin skin which covers them, I watered the plants and the earth on the bed, and having prepared some two-penny pots, I lifted two roots together, planting them with a clump of earth into these pots filled with the same sort of earth, in which I planted them at first on the hot-bed, settling the earth well about the roots, and preserving the clump of earth with which I lifted them from the hot-bed, close to their roots, putting the same into these pots whereinto I transplanted them: I put these roots and pots, some into the green-house, and some into the bed-chambers of my house, which they agreeably perfumed with their exquisite fragrant odours; and when their blossoms expanded, I kept their pots moist to push out their flowers, until they dropt entirely; setting their pots near windows whereon the sun shone brightest, to make them expand their blossoms fully.

We have of late years got the double flowering Tuberose, which plant was first raised by Monsieur *Le Cour*, at *Leyden* in *Holland*, from the seeds of the single-flowered sort: to which gentleman the curious are much beholden for his many new improvements in gardening, as well upon exotick, as upon our indige-

nous plants in *Europe*. This root he kept to himself as a great curiosity, and with the same assiduity, as the late Duke of *Tuscany* did the great double-blossomed *Arabian* jessamine at *Pisa*, where centinels of his guards always attended this plant, that cuttings thereof (by which it can be propagated) might not be stolen away. Such was the practice when I was at *Pisa*.

However, Monsieur *Le Cour* is become more communicative of this his favourite flower, by bestowing roots of it upon some of the curious gentlemen in *England*, from whom we had a share of the roots sent us to *Edinburgh*. Its culture is much the same as that which is given to the single kind, (which I think for smell preferable to the double kind) with this difference, that I choose to pot the doubles at first planting, and put them into a very moderate tan-bed, to make their roots strike and hasten to bloom. Their off-sets, of which I was very careful, I planted into the same earth I used for hyacinths, and put them upon a gentle hot-bed of tan-bark in *March*; in *June* I took off their glass-covers, and arched them over with hoops and matts above; in *September* or *October*, when their leaves were quite down, I lifted them, and kept them in a dry warm place, until planting season, in *March* or *April* following: For it is from these off-sets only you can expect flowers; for roots, which have once given you blossoms, will never afterwards shew their flowers. When the flowers of the double sorts open the tunicle upon the head of their stems, put them into a green-house, or in chambers where the sun can shine upon their flower-stems, and they will expand their pretty blossoms to the number of twenty, or sometimes twenty-five, with surprising beauty and vigour.

The

*The Description of the Pine-apple, or Anana's Stoves, and the Culture of these Plants to bring them to Fruit.\**

HAVING given the necessary directions for making hot-beds suitable to bring up most of what is propagated to serve a good kitchen, and to have every thing requisite for this use very early, and in great perfection; I proceed to give my readers a plan for erecting the Anana's or Pine-apple stoves, with the culture of that excellent fruit: And I am rather invited to do it in this treatise, than in any other work, since most of our connoisseurs have adopted these stoves and

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\* *The culture of the Pine Apple, and the management of the Stove, being considered the most capital things in Gardening, we shall, in order to give every thing necessary for the instruction of young practitioners, introduce such directions as have been given by Philip Miller, Esq; of whom our author makes most honourable mention; and with them, the plans of such stoves as are in general use.*

Stoves are contrivances for the preserving tender exotick plants, which will not live in these northern countries without artificial warmth in winter. These are built in different methods, according to the ingenuity of the artist, or the different purposes for which they are intended, but in *England* they are at present reducible to two or three.

The first is called a dry stove, being so contrived, that the flues through which the smoke passes, are either carried under the pavement of the floor, or else are erected in the back part of the house, over each other, and are returned six or eight times the whole length of the stove, according to the height. In these stoves the plants are placed on shelves of boards laid on a scaffold, rising above each other like the seats in a theatre, for the greater advantage of their standing

and this fruit into their best kitchen-gardens, and I think very properly. There have of late years been erected in *England* and *Scotland*, many sorts of stoves for the culture of this fruit; but I am sure, after many experiments, that the plan here annexed, is the best of any  
I have

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in sight, and enjoying an equal share of light and air. In these stoves are commonly placed the tender sorts of aloes, cereuses, euphorbiums, tithymals, and other succulent plants, which are impatient of moisture in Winter, and require for the most part to be kept in a separate stove, and not placed among trees, or herbaceous plants, which perspire freely, and thereby often cause a damp air in the house, which is imbibed by the succulent plants to their no small prejudice. These stoves may be regulated by a thermometer, so as not to over-heat them, nor to let the plants suffer by cold, in order to which all such plants, as require nearly the same degree of heat, should be placed by themselves in a separate house, for if in the same stove there are plants placed of many different countries, which require as many different heats, by making the house warm enough for some plants, others by having too much heat, are drawn and spoiled.

The other sort of stoves are commonly called bark stoves to distinguish them from the dry stoves already mentioned. These have a large pit, nearly the length of the house, 3 feet deep, and 6 or 7 feet wide, according to the breadth of the house, which pit is filled with fresh tanners bark to make a hot bed, and in this bed the pots of the most tender exotick trees, and herbaceous plants, are plunged. The heat of this bed being moderate, the roots of the plants are always kept in action, and the moisture, detained by the bark, keeps the fibres of their roots in a ductile state, which in the dry stove, where they are placed on shelves, are subject to dry too fast, to the great injury of the plants. In these stoves, if they are rightly contrived, may be preserved

I have seen for that purpose ; and in this stove, with one fire, I can do the business of two stoves which must have two fires. I own the erecting of it is expensive, but I think it is better to build a stove to purpose at first, than to be always building to little or no purpose, or  
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preserved the most tender exotick trees and plants, which, before the use of the bark was introduced, were thought impossible to be kept in *England*, but, as there is some skill required in the structure of both these stoves, I shall not only describe them as intelligibly as possible, but also annex plans of both stoves hereto, by which it is hoped every curious person will be capable of directing his workmen in their structure.

The dimension of these stoves should be proportioned to the number of plants intended to be preserved, or the particular fancy of the owner, but their length should not exceed 40 feet, unless there are two fire places, and in that case it will be proper to make a partition of glass in the middle, and to have two tan pits, that there may be two different degrees of heat for plants from different countries (for the reasons before given in the account of dry stoves,) and were I to erect a range of stoves, they should be all built in one, and only divided with glass partitions, at least the half way toward the front, which will be of great advantage to the plants, because they may have the air in each division shifted by sliding the glasses of the partitions, or by opening the glass door, which should be made between each division for the more easy passage from one to the other.

These stoves should be raised above the level of the ground, in proportion to the dryness of the place, for if they are built on a moist situation, the whole should be placed on the top of the ground, so that the brick work in front must be raised 3 feet above the surface, which is the depth of the bark bed, whereby none of

be from year to year disappointed of good crops of fruit ; besides, this stove serves for the culture of the old as well as of the young plants, and I am certain this plan is most exactly executed, according to the scale at the bottom of it.

However

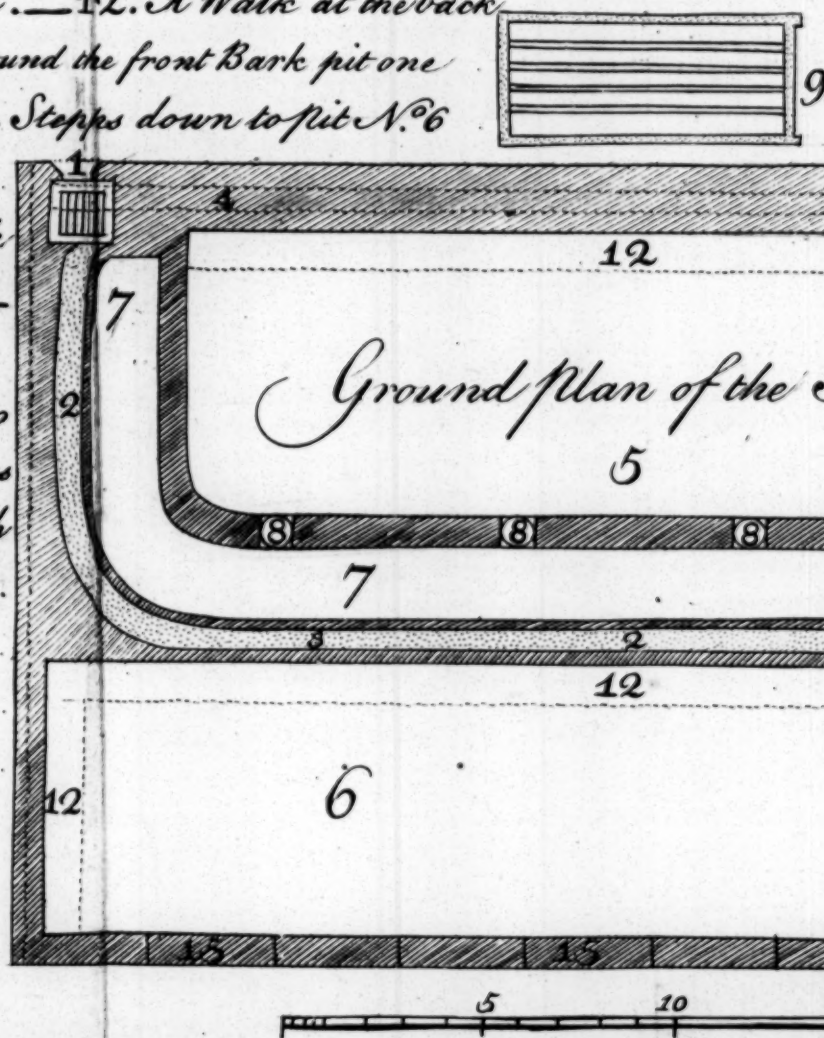
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the bark will be in danger of lying in water, but, if the soil be dry, the brick work in front need not be more than 1 foot above ground, and the pit may be sunk 2 feet below the surface. Upon the top of this brick work in front must be laid the plate of timber, into which the wood work of the frame is to be mortised ; this should be of sound oak without sap, the dimension 10 inches wide, and 6 deep, and the upright timbers in front must be placed 4 feet asunder ; or somewhat more, which is the proportion of the width of the glass doors or sashes ; these should be about 6 feet and a half, or 7 feet long, and placed upright ; their dimension should be 9 inches by 6, of yellow fir ; but from the top of these should be sloping glasses, which should reach within 3 feet of the back of the stove, where there should be a strong crown piece of timber placed, in which there should be a groove made for the glasses to slide into ; the dimension of the sloping timbers should be 10 inches by 9, of yellow fir, and the crown plate 1 foot by 9 or 10 inches of the same timber. The wall in the back part of the stove should be at least 13 inches thick, but 18 or 22 inches, which is two bricks and a half, will be better, for the greater thickness there is in the back wall, the more heat will be thrown to the front, whereby the air of the stove will be better warmed, and the building will be so much stronger, for to this back wall the flues, through which the smoke is to pass, must be joined. This back wall should be carried up about 16 feet high or more for tall stoves, that they may be of a proper height to support the timbers of the back roof which covers the shed behind the stove. This roof is fasten-  
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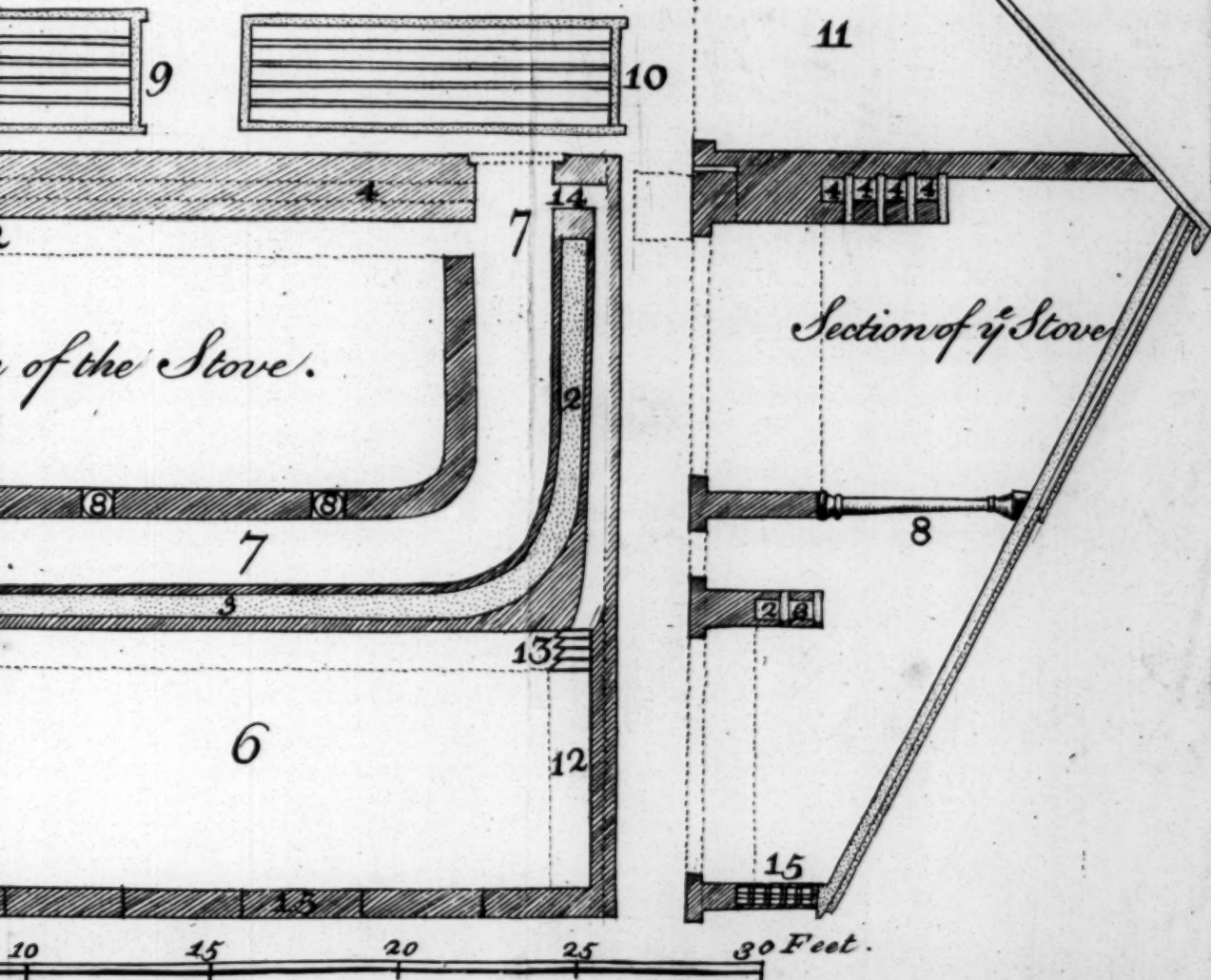
# Explana

N<sup>o</sup> 1. Fire place and Ash-hole. — 2. First Flue. — 3. Second  
 Wall after the Second has past over the fire Place. — 5. Bark Pit for  
 Pit for young Plants or other Crops. — 7. Walk through the Stove  
 to support the Roof. — 9. Upper Lights to meet. — 10. Lower Lights  
 11. Shade at discretion. — 12. A Walk at the back  
 of the Bark bed and round the front Bark pit one  
 foot in breadth. — 13. Steps down to pit N<sup>o</sup> 6  
 and the Walk. —  
 14. Passage into the Walk  
 round the bed N<sup>o</sup> 6. —  
 15. Windows all along  
 the front of the Stove two  
 feet high and as broad as  
 the Sliding Glases, which  
 Windows have cross bars.



anation.

3. Second Flue. — 4. Flues in the back  
Bark Pit for fruiting Plants. — 6. Bark  
h the Stove. — 8. Small Pillars of Wood  
over Lights to slide up and down. —



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However I cannot omit taking notice of a few particulars to assist the undertakers and builders of these stoves, whereby this plan (exact as it is) may be better executed ; *1mo*, To give a due warmth to the air in the house, so as to raise the spirit of wine in Mr. *Fowler's*, or Mr. *Coles's* botanical thermometers to Anana's heat,

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ed into the crown piece before-mentioned, which in tall stoves should be about 30 feet above the surface of the tan bed, which will give a sufficient declivity to the sloping glasses to carry off the wet, and be of a reasonable height for containing many tall plants. The back roof may be slated, covered with lead, or tiled, according to the fancy of the owner, but the manner of the outside building is better expressed by the annexed plan, than is possible to be described in words.

In the front of the house, before the tan-bed, there should be a walk, about 2 feet wide, for the convenience of walking ; next to which the bark pit must be placed, which should be in width proportionable to the breadth of the house. If the house is 14 feet wide, which is a due proportion, the pit may be 8 feet wide, and behind the pit should be a walk 2 feet wide, to pass in order to water the plants, &c., then there will be 2 feet left next the back wall, to erect the flues, which must be all raised above the level of the bark bed. These flues ought to be 1 foot wide in the clear, that they may not be too soon stopped with the soot, as also for the more conveniently cleaning them ; the lower flue into which the smoke first enters from the fire should be two feet deep in the clear ; this should be covered with broad tiles, which should be a foot and a half square, that they may be wide enough to extend over the wall in front of the flues, and to take sufficient hold of the back wall ; over this the second flue must be returned back again, which may be 18 inches deep, and covered on the top as before, and so in like manner the flues may be returned over each other 6 or 8 times,

heat, or ten or five degrees above that point, and to keep the same thereto, depends on the right structure of the fire place, so that it works and draws well. To remedy these faults, which in the best built stoves may happen, my very worthy and ingenious friend, Mr. *James Scot* at *Turnham Green* near *London*, has lately invented

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8 times, that the heat may be spent before the smoke passes off. The thickness of the wall in front of these flues need not be more than 4 inches, but it must be well jointed with mortar, and pargeted within side to prevent the smoke from getting into the house, and the outside should be faced with mortar, and covered with a coarse cloth, to keep the mortar from cracking, as is practised in setting up coppers. If this be carefully done, there will be no danger of the smoke entering the house, which cannot be too carefully guarded against, for there is nothing more injurious to plants than smoke, which will cause them to drop their leaves, and, if it continue long in the house, will entirely destroy them.

The fire place must be made at one end, where there is but one ; but, if the stove is so long as to require two, they should be placed at each end of the shed, which must be made the length of the stove, that the fires and the back of the flues may not suffer from the outer air, for it will be impossible to make the fires burn equally, where the wind has full ingress to it, and it will be troublesome to attend the fire in wet weather, where it is exposed to the rain.

The contrivance of the furnace must be according to the fuel which is designed to burn, but as turf is the cheapest firing for stoves, where it can be had, many prefer it, because it lasts longer than any other sort of fuel, and so requires less attendance, I shall describe a proper sort of furnace for that purpose.

The whole of this furnace should be erected within the house, which will be a great addition to the heat,  
and

invented a model, and has put the same into execution, of those furnaces, which are cast in *London*, for three-pence *per* pound, but would cost ten-pence if they were to be wrought by any Smith; which draw better than any furnaces built for that purpose: So that whoever designs to erect these stoves, may apply  
to

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and the front wall on the outside of the fire place, next the shed, should be 3 bricks thick, the better to prevent the heat from coming out that way. The door of the furnace, at which the fuel is put in, must be as small as conveniently may be to admit the fuel; and this door should be placed near the upper part of the furnace, and made to shut as close as possible, so that there may be but little of the heat pass off through it. This furnace should be about 20 inches deep, and 16 inches square at bottom, but may be sloped off on every side, so as to be 2 feet square at the top, and under this furnace should be a place for the ashes to fall into, which should be about a foot deep, and as wide as the bottom of the furnace; this should also have an iron door to shut as close as possible, but just over the ash hole, above the bars which support the fuel, should be a square hole about 4 or 6 inches wide to let in air to make the fire burn; this must also have an iron frame, and a door to shut close when the fire is perfectly lighted, which will make the fuel last longer, and the heat will be more moderate.

The top of this furnace should be nearly equal to the top of the bark bed, that the lowest flue may be above the fire, so that there may be a greater draught for the smoke, and the furnace should be arched over with bricks. The best materials for this purpose are what the bricklayers call *Windfor* bricks, which should be laid in loam of the same kind as that the bricks are made with, and this, when burnt by fire, will cement the whole together, and become like one brick, but you should be very careful, where-ever the fire is placed,  
that

to me, and from him I can have as many of these furnaces as are wanted; for the carriage from *London* to *Edinburgh* is a trifle: When it arrives, it will only want a wrought iron-door, hooks, and a latch, as there will be holes in the cast iron to fix them in, so as they may be easily and plainly understood by any  
Blacksmith

that it be not too near the bark bed, for the heat of the fire will, by its long continuance, dry the bark, so that it will lose its virtue, and be in danger of taking fire, to prevent which, it will be the best method to continue a hollow, between the brick work of the fire and that of the pit, about 8 inches wide, which will effectually prevent any damage arising from the heat of the fire, nor should there be any wood work placed near the flues, or the fire place, because the continual heat of the stove may in time dry it so much, as to cause it to take fire, which ought to be very carefully guarded against.

The entrance into this stove should be either from a green-house, the dry stove, or else through the shed where the fire is made, because in cold weather the front glasses must not be opened. The inside of the house should be clean white-washed, because the whiter the back part of the house is, the better it will reflect the light, which is of great consequence to plants, especially in Winter, when the stove is obliged to be shut up close.

Over the top sliding glasses there should be either wooden shutters, or tarpawlins fixed in frames, to cover them in bad weather, to prevent the wet from getting through the glasses, and to secure them from being broken by storms and hail, and these outer coverings will be very serviceable to keep out the frost, and if in very severe cold there is a tarpawlin hung before the upright glasses in the front, it will be of great service to the stove, and much less fire will preserve a heat in the house.

In

Blacksmith who puts up this furnace into the oven that is to be made for it, which must be suited to the largeness of the stove, and the quantity of fruit which are intended to be cultivated in such stoves: It will be proper that the oven be built within the stove, but in such a manner, that there may be two or three feet betwixt

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In the warmest of these houses or divisions should be placed the most tender exotic trees and plants; a list of which followeth:

Acajou, or Cashew,  
 Ahouai,  
 Allegator Pear,  
 Allspice, or Pimento,  
 Arrow Root,  
 Bananas,  
 Bastard Cedar of *Barbadoes*,  
 Bastard Locust of *Barbadoes*,  
 Bully Tree,  
 Button Wood of *Barbadoes*,  
 Cabbage Tree,  
 Cocoa Tree,  
 Calibash Tree,  
 Cassada,  
 Cedar Tree of *Barbadoes*,  
 Cherry Tree of *Barbadoes*,  
 Cocoa Nut Tree,  
 Cortex Winteranus.  
 Custard Apple,  
 Date Tree,  
 Dumb Cane,  
 Fiddle Wood,  
 Fig Tree, the Arched *Indian*,  
 Flower Fence of *Barbadoes*,  
 Fustick Tree,  
 Ginger,

Gua-

betwixt any part of it and the bark in the tan-pit ; for if there was not such a space betwixt this oven and the tan, the bark would be too much dried, and consequently would not ferment properly. This oven upon its top must have a large iron-cast plate, supported by a very strong iron trelace ; and above the plate, which must be

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Guaiacum,  
 Logwood,  
 Macaw Tree,  
 Mamee Tree,  
 Mancinel Tree,  
 Mimosa, or Sensitive Plants,  
 Nickar Tree, or Bonduc,  
 Palm Trees of several sorts,  
 Papaw Tree,  
 Plantane Tree,  
 Plum Tree of *Jamaica*,  
 Hog Plum,  
 Sapotilla Tree,  
 Santa Maria,  
 Sour Sop,  
 Sugar Apple,  
 Sweet Sop,  
 Tamarind Tree,  
 Tulip Flower, or White-wood.

These with most other sorts of trees, shrubs, and herbaceous plants, which are natives of very warm countries, should be plunged in the bark bed for the reasons already assigned, and over the flues may be a conveniency made to set the melon thistle, the tender sorts of cereuses, and euphorbiums, with other very tender succulent plants, which require to be kept dry in Winter.

As in this stove are placed the plants of the hottest parts of the *East* and *West-Indies*, the heat should be kept

be well fixed with the bricks into the side of the furnace, you may lay a brick arch with some broad tiles two feet broad every way, and close cemented together with good mortar, and pan-cratch above all, upon which you may set the *Melo-cactus*, and the *Echinomelo-cactus* plants, as is hereafter directed. There are many

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kept up equal to that marked *Anana* upon the botanical thermometers, and should never be suffered to be above 8 or 10 degrees cooler at most, nor should the spirit be raised above 10 degrees higher in the thermometer during the Winter season, both which extremes will be equally injurious to the plants.

But in order to judge more exactly of the temper of the air in the stove, the thermometer should be hung at a good distance from the fire, nor should the tube be exposed to the sun, but on the contrary, as much in shade as possible, because, whenever the sun shines upon the ball of the thermometer but one single hour, it will raise the liquor in the tube considerably, when perhaps the air of the house is not near so warm, which many times deceives those who are not aware of this.

In the management of the plants placed in the bark bed, there must be a particular regard had to the temper of the bark, and the air of the house, that neither be too violent; as also to water them frequently, but sparingly, in cold weather, because when they are in continual warmth, which will cause them to perspire freely, if they have not a proper supply to answer their discharge, their leaves will decay, and soon fall off.

The other sort of stove, commonly called the dry stove, as was before said, may be either built with upright and sloping glasses at the top, in the same manner, and after the same model of the bark stove, which is the most convenient; or else the front glasses, which should

ny persons who build a flue in the fronts of their stoves near the glasses ; but this practice is very wrong, for these flues dry the bark too much, and thereby stop the fermentation from whence its heat proceeds ; besides the flues at the backs of the beds are sufficient to warm the air above the tan-pits, which is all that is required

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should run from the floor of the cieling, may be laid sloping, to an angle of 45 degrees, the better to admit the rays of the sun in Spring and Autumn. The latter method has been chiefly followed by most persons who have built these sorts of stoves, but were I to have the contrivance of a stove of this kind, I would have it built after the model of the bark stove, with upright glasses in front, and sloping glasses over them, because this will more easily admit the sun at all the different seasons, for in Summer, when the sun is high, the top glasses will admit the rays to shine almost all over the house, and in Winter, when the sun is low, the front glasses will admit its rays ; whereas, when the glasses are laid to any declivity in one direction, the rays of the sun will not fall directly thereon above a fortnight in Autumn, and about the same time in Spring, and during the other parts of the year they will fall obliquely thereon, and in Summer, when the Sun is high, the rays will not reach above five or six feet from the glasses. Besides, the plants, placed toward the back part of the house, will not thrive in the Summer season for want of air, whereas when there are sloping glasses at the top, which run within four feet of the back of the house ; these, by being drawn down in hot weather, will let in perpendicular air to all the plants, and of how much service this is to all sorts of plants, every one who has had opportunity of observing the growth of plants in a stove, will easily judge ; for when plants are placed under cover of a cieling, they always turn themselves toward the air and light, and thereby grow crooked ; and

required from them. *2do*, I observe, that the first flue, which must be higher than the bark in No. 6. pit, by six inches at least, must be two feet and a half in height, and ten inches broad, so as a foot-tyle may cover it ; and the second flue, No. 3. may be two feet three inches ; the lowermost of No. 4. flues, must be  
two

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and if in order to preserve them strait, they are turned every week, they will nevertheless grow weak, and look pale and sickly, for which reasons, I am sure, whoever has made trial of both sorts of stoves, will readily join with me to recommend the model of the bark stove for every purpose.

As to the farther contrivance of this stove, it will be necessary to observe the temper of the place, whether the situation be dry or wet ; if it be dry, then the floor need not be raised above 2 feet above the level of the ground, but if it be wet, it will be proper to raise it 3 feet, especially if these flues are to be carried under the floor, for when they are erected close upon the surface of the ground, these will raise a damp, which will prevent the flues drawing so well as when they are more elevated. The furnace of this stove must be placed at one end of the house, according to the directions before given. This must be made according to the fuel intended to burn, which, if for coals or wood, may be made according to the common method for coppers, but only much larger, because, as the fire is to be continued in the night chiefly, if there is not room to contain a proper quantity of fuel, it will occasion a great deal of trouble in tending upon the fire in the night, which should be avoided as much as possible, because whenever the trouble is made very great or difficult, and the person, who is intrusted with the care of it, has not a very great affection for the thing, and is withal not very careful, there will be great hazard of the fire being neglected, which in a little time may be of dangerous consequence to the plants ; but,  
if

two feet in height, ascending gradually to the height in the highest flue, No. 4. to one foot, and that for the better drawing of the smoke: And *3<sup>to</sup>*, the depth of both the tan-beds should be four feet. *4<sup>to</sup>*, You must not have any bars in the sloping glasses, these interrupt the steam or water from running down from the

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if the fuel intended be turf, then the contrivance of the furnace may be the same as for the bark stove already mentioned. The flues of this stove, if they are carried under the pavement, may be turned after the manner of *Fig. 1.* in the plate, which will cause them to draw better than if strait, and by this method of disposing them, they may be so much turned as to reach from the back to the front of the house.

The depth of them should not be less than 18 inches, and the width nearly equal, which will prevent their being choaked up with soot, as is often the case when the flues are made too small. The spaces between the flues should be filled up either with dry brick rubbish, lime, or sand, from which there will little moisture arise, and the flues should be closely plaistered with loam both within and without, and the upper part of them covered with a coarse cloth under the floor to prevent the smoke from getting into the house.

When the flue is carried from the furnace to the end of the house, it may be returned in the back above the floor twice in strait lines, which may be contrived to appear like a step or two, by which means the smoke will be continued in the house until all its heat is spent, which will consequently warm the air of the house the better, and the chimneys, through which the smoke is to pass off, may be either at both ends or in the middle, carried up in the thickness of the brick work of the flues, so as not to appear in sight in the house. The flues should be first covered with broad tiles, and then a bed of sand laid over them about two inches thick, upon which the plain tiles should be laid to correspond with

the uppermost to the lower parts of the glass roof, and thus the steam drops upon the plants, which is of most pernicious consequence to them. 5<sup>to</sup>, The shades to cover the fore-parts of the ovens, and the doors or entrances to the stoves, as they are built at different ends, should be built on each side of the stove, and not at the back thereof; for in covering the upper range of sloping glasses, it may occasion a ladder to be used for covering them with their wooden covers, and a ladder cannot be applied for that purpose to the back of the stove, if any building jutting out from the back of the stove is there. 6<sup>to</sup>, I thought it quite adviseable to give small front windows to this stove, that when air cannot

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with the rest of the floor. This thickness of cover will be full enough to prevent the too sudden rise of the heat from the flues.

But if the furnace is placed under the floor, the thickness of the sand between the brick arch that covers it and the floor, should not be less than four or six inches; so that the bottom of the furnace should be sunk the lower; and if from the fire place to the end of the house, the flues are laid a little rising, it will cause them to draw the better; but this rise must be allowed in the placing them lower under the floor next the fire, because the floor must be laid perfectly level, otherwise it will appear unsightly.

In this stove there should be a stand or scaffold erected for placing shelves above each other, in the manner of *Fig. 2.* in the plate, that the plants may be disposed above each other, so as to make a handsome appearance in the house; but these shelves should be made moveable, so as to be raised or sunk, according to the various heights of the plants; otherwise it will be very troublesome to raise or sink every particular plant, according to their heights, or every year as they advance in their growth.

cannot be admitted to the plants by the sloping glasses, it might be there given to them. If your soil is wet, the whole of the stove should be built above ground; but, on the contrary, if you have a dry soil, the front of the stove may be in height above the earth, which is below the front glasses, two feet; and this stove may have upright windows in both ends: the full expence for erecting and compleating such a stove, will be near forty eight pounds sterling, and when the proprietors are near coal and bark, the annual charge (if the glasses are kept in good repair) will be five pounds sterling.

I proceed

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In placing the feet of this stand, you must be careful not to set them too near the fire, nor directly upon the top of the flue, especially that end next the fire, least by the constant heat of the tiles the wood should take fire, which cannot be too much guarded against; since such an accident would go near to destroy all the plants, if the house escaped being burnt. This stand or scaffold should be placed in the middle of the house, leaving a passage about two feet and a half in the front, and another of the same width in the back, for the more conveniently passing round the plants to water them; and that the air may freely circulate about them. In disposing the plants, the tallest should be placed backward, and the smallest in front; so that there will not be occasion for more than five or six shelves in height at most; but the scaffold should be so contrived, that there may be two or three shelves in breadth laid upon every rise whenever there may be occasion for it, which will save a deal of trouble in disposing of the plants.

In the erection of these stoves, it will be of great service to join them all together with only glass partitions between them, as was before observed; and where several of these stoves and green-houses are required in one garden, then it will be very proper to have the green-

I proceed now to the culture of the Ananas or Pine-apple, the best kinds of which are :

1mo, *Pyramidal Pine-apple, with a yellow Flesh, or, Ananas aculeatus fructu pyramidato, carne aurea. Plumer. Ind. Occid. bist. plant.*

2do, *Olive-coloured Pine-apple, or, Ananas fructu ovato ex luteo virescente, carne lutea. Plum. bist.*

3to, *The green Pine-apple, or, Ananas aculeatus fructu pyramidali ex viridi flavescente, or King-Pine.*

When

green-house in the middle, and the stoves at each end, either in the manner directed in the plan of the green-house exhibited in that article, or carried on in one strait front.

By this contrivance in the structure of these houses, a person may pass from one to the other of them, without going into the open air ; which, besides the pleasure to the owner, is also of great use, because there will be no occasion of making a back-way into each of them, which otherwise must be, since the front glasses of the stove should not be opened in cold weather, if it can possibly be avoided on any account, otherwise the cold air rushing in, will greatly prejudice the very tender plants.

But besides the stoves here described, and the green-house, it will be very necessary to have a glass case or two where-ever there are great collections of plants. These may be built exactly in the manner already described for the stoves, with upright glasses in front, and sloping glasses over the top of them, which should run within four feet of the back of the house. The height, depth, and other dimensions, should be conformable to that of the stoves, which will make a regularity in the building. These may be placed at the end of the range on each hand beyond the stoves ; and

When your stove is built, and fires have been made to dry the damp which are commonly in all new built works, it will be quite ready to receive your pines: And to have the best kinds and best plants, I would advise my readers, who desire to propagate this fruit, to buy them from the before-mentioned Mr. *James Scot*, at *Turnbam-Green* near *London*, who will serve them as well, and as cheap as any person; I would advise them to send for those plants in *May*, that they may come here in *June*; for at that season there is no fear that the plants will receive damage by cold in their passage, altho' the baskets in which these plants are put should stand above deck in the ship; but if they can be put below deck, when the ship goes out to sea, it would be better. I would direct the following number of plants to furnish such a stove, and of the following

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if there be a flue carried along round each of these, with an oven to make a fire in very cold weather, it will save a great deal of labour, and prevent the frost from ever entering the house, be the Winter ever so severe; but the upper glasses of these houses should have either shutters of wood, or tarpawlins in frames to cover them in frosty weather; and if there is a contrivance to cover the upright glasses in frost, either with mats, shutters, or tarpawlins, it will be of great use in Winter, otherwise the flue must be used when the frost comes on, which should not be done but upon extraordinary occasions, because the design of these houses is, to keep such plants as require only to be preserved from frost, and need no additional warmth; but at the same time, require more air than can conveniently be given them in a green-house. In one of these houses may be placed all the sorts of *Ficoides*, *African Sedums*, *Cotyledons*, and other succulent plants from the *Cape of Good Hope*. In the other may be placed the several kinds of *Arctotis*, *Osteospermum*, *Royena*, *Lotus*, and other woody or herbaceous plants from the same country, or any other in the same latitude.

Thus,

ing ages, viz. six dozen of large plants, which will give fruit the year after you receive them, and six dozen of plants which will fruit the second year after you receive them, and one hundred small crowns and suckers to be sent here in *August* following, packed up in boxes, which will be of a small price; this number will be sufficient to furnish your stove, and from which, in a few years, you may easily cut ninety or one hundred good fruit annually. When you begin to build your stove, or even some months before, you should make provision for compost, in which your pines are to grow;

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Thus, by contriving the green-house in the middle, and one stove, and a glass case at each end; there will be a conveniency to keep plants from all the different parts of the world, which can be no otherwise maintained but by placing them in different degrees of heat, according to the places of their native growth.

The stoves before described are such as are usually built to maintain exotick plants, which will not live in *England*, unless they enjoy a temperature of air, approaching to that of the several countries from whence they are brought; therefore, whoever is inclinable to preserve a large collection of plants from different countries, must contrive to have two or three of these stoves, each of which should be kept in a different temperature of warmth; and the plants should be also adapted to the several degrees of heat, as they shall require to preserve them; and as the far greater number of stoves, which have been erected in *England*, are designed for the culture of the *Ananas* only: so I shall add a description and plans of two sorts of stoves, of the least expence in building for this purpose; so that whoever is inclinable to erect a stove for ripening the *Ananas*, may, by attending to the plans and descriptions, direct the building and contriving such stoves as they are desirous to have; or according to the number of fruit proposed to be ripened annually.

grow; and this I would advise to be thus made up, two thirds of good loamy kitchen-garden mould, if it is a yellow rich loam, so much the better, and one third old rotted cows dung, or for want of that, the bottom of an old melon or cucumber hot-bed which is well rotted; and to every eight barrows full of this put a barrow full of sea sand; but if your ground is naturally sandy, after having mixed it with the dung above-mentioned, add thereto a third of good fat marle, which succeeded so well with me, that in this compost I had much larger fruit than in any other composed earth I used

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The first sort of stove is that which is designed for the plants which produce the fruit the same year; for as the plants do not generally fruit, until the second year from their being taken from the old plants, whether they are suckers from the side of the plant, or crowns taken from the fruit, if they fruit the succeeding year, the fruit will be small; therefore, when they are properly managed, they will not produce their fruit until the second year; by which time they will have obtained strength to produce large fruit, in which their greatest value consists; for although there are several varieties of this fruit, which differ in degrees of goodness, as in most other fruits; yet they may all of them be improved in their size, without diminishing their excellencies in taste; though I know there are some persons of a contrary opinion, and who believe, that the small fruit are always better flavoured than the large; but from long experience I can assert, that the larger and better nourished this fruit is, the higher will be its flavour, supposing the sorts are the same; therefore every person who cultivates this fruit, should endeavour to have it improved to the greatest perfection; in order to which it will be proper to have a small stove, in which the young plants may be placed to bring them forward for fruiting; and the following autumn they should be removed into the larger stove for ripening:

used to give them; which induced me to put a good deal of marle in the compost I used for these plants always, whatever quality the earth wherein I planted them was of; the colour of this marle should be white, or of a yellowish cast, well dug, and manured one year before it is put to use. If you have not kitchen-garden mould which is good, then take virgin earth ten inches deep only below the sward, and let it and the sward lie to rot one year, and when it is fit for use, take one third of the said well rotted dung, or if the ground is stiff, use sand in the same proportion, and a fourth part

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ing: But I shall return to the description of the larger stove. The length of this must be proportionable to the quantity of fruit desired in one season; for as to their width, that should not be much varied; the tan bed should never be narrower than six, nor should it be more than seven feet wide; for when it is more, there will be difficulty in reaching those plants which are in the middle of the bed, to water or clean them, and if there is room enough on each side of the bed for a walk, a foot and a half broad, it will be sufficient for persons to water and do every thing which is necessary to the plants; and as these places are not designed for walking in, so it is to no purpose to have broad walks, which will take up too much space; and the fires must be larger, in proportion to the space of the house; otherwise the air cannot be kept in a proper temperature of warmth. If the stove is made 36 feet long in the clear, then the tan bed may be thirty three feet long, and a walk left at each end a foot and a half wide; which will be sufficient to walk round the bed to water and attend the plants; and such a tan bed will contain eighty fruiting plants very well, if the bed is seven feet wide; and this stove may be very well warmed with one fire; but if the stove is built much larger, there must be two fire places contrived, one at each end, otherwise the air of the house cannot be kept in a proper temperature of heat.

part marle; but if your mould is free, you need not use any sand: Incorporate your dung and earth six months at least before you use it; and this compost, as all composts, should lie in these parts of a garden which are airy, and the best exposed to the sun, and should be after the first three months turned over every fortnight, that it may thereby imbibe the nitrous particles of the air. Your plants being arrived, unpack and unpot them, take away most of the earth from about their roots, and take off whatever fibres you see injured or withered; then taking your compost, plant

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heat. The quantity of fuel which will be wanting for a stove of thirty-six feet long in the clear, is about three chaldron and a half of coals, or in such proportion for any other sort of fuel; when coals can be had reasonable, it is the best kind of fuel; and the pit or *Scotch* coal is preferable to the *Newcastle* coal, because the latter is very subject to melt or run into clinkers, when the oven is very hot, which the pit coal never does, but always burns away with a white ash, making but little foot; so that the flues will not require to be so often cleaned, as when the other coal is used. The next best fuel for stoves is peat, where it can be procured good, but the scent of this fuel is disagreeable to many people. There are some persons who burn wood in their stoves, but this fuel requires much greater attendance than any other, therefore is not very proper for this purpose; but in the building of the stoves, the ovens must be contrived for the sort of fuel, which is to be used in them; but these will be afterward described, and the places where they should be situated, are delineated in the plan.

The stoves designed for ripening the fruit of the *Ananas*, should have upright glasses in their front, which should be high enough to admit a person to walk upright under them on the walk in the front of the house; or, where this cannot be admitted, the front walk may be sunk

plant them all into pots of the very same size with these in which they arrived, cutting off the extremities of whatever leaves are withered or injured; water them, settle the earth about them, and put them into the tan, which if too hot, put them half pot deep only, and in a fortnight after, you may sink them up to the brims of their pots, watering them three times in the week gently, and shading them in the hot sunshine for a month, until you perceive them growing. In hot sunshine the glasses should be raised or drawn up to give them air, and they may be watered all over their

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sunk one foot lower than that on the back of the tan bed, so that the surface of the bed will be a foot above the walk, which will be rather an advantage, as the plants will be so much nearer the glass; and a person may, with great ease, water and attend the plants, when they are thus raised above the walk; therefore, when a stove is so situated, as that the raising of it high above ground, might be attended with inconvenience, the walks quite round the tan bed may be sunk a foot or 18 inches below the top of the bed; which will admit of the stove being built so much lower; for if there is height for a person to walk under the glasses, it will be as much as is required; but as the flues, when returned four times against the back wall, will rise near 7 feet, so the bottom of the lower flue should be on the same level with the walk, to admit room enough for the whole under the roof. Over the upright glasses there must be a range of sloping glasses, which must run to join the roof; which should come so far from the back wall as to cover the flues, and the walk behind the tan pit; for if the sloping glasses are of length sufficient to reach nearly over the bed, the plants will require no more light; therefore these glasses should not be longer than is absolutely necessary, which will render them more manageable; but the annexed plan will render this more intelligible than any written description can do.

The

their leaves to cleanse them from filth; but in doing this, be careful that this water does not settle for any time in the tubes of the leaves in their hearts, which might be of dangerous consequence to them, and of which I have seen the pernicious effects amongst the best plants in *England*.

There are many persons who put those plants into frames of wood and glass, made in the same manner as common hot-bed frames are, but higher and broader, that is, three feet high at the back, sloping to one and a half in front, six feet wide, which cover a tan-pit  
built

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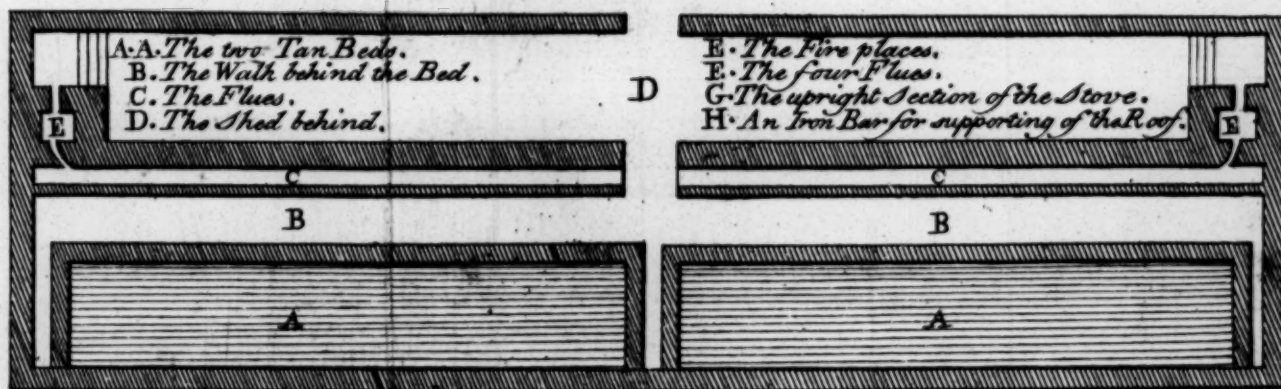
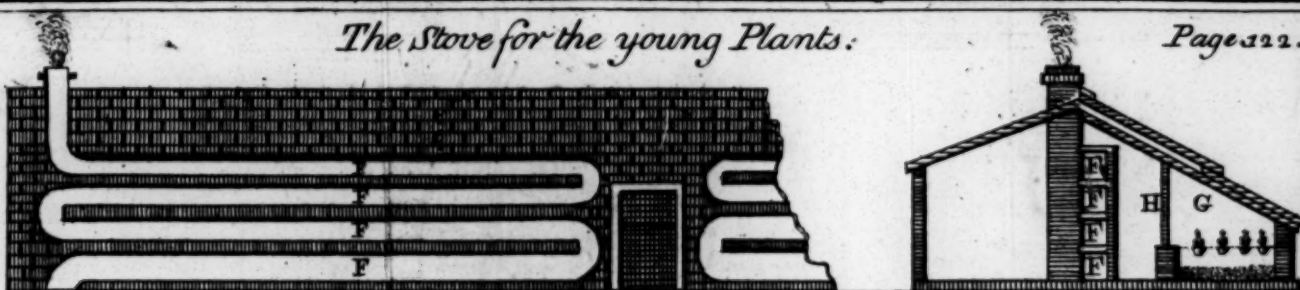
The other sort of stove, which is designed for raising of young plants, until they are of a proper size to produce fruit, need not be built so high as the former; therefore there will not be wanting any upright glasses in the front; but the frames may be made in one slope, as in the annexed plan; indeed of late years, many persons have made tan beds, with two flues running through the back wall, to warm the air in winter; and these beds have been covered with glasses, made in the same manner as those for common hot beds, but larger; these were contrived to save expence, and have in many places answered the intention, but to these there are several objections. 1. That of having no passage into them; so that the glasses must be taken off, when the plants want water, &c. 2. The damps very often rise in the winter season, when the glasses are closely shut, which often proves very injurious to the plants. 3. There is danger of the tan taking fire, where there is not great care taken that it doth not lie near the flues; so that although the small stoves here proposed require more expence in their building, yet, being greatly preferable to those pits, and the after expence being the same, they will be found so much more convenient as to render them more general where the fruit is cultivated.

Where there is no danger of the wet settling about the  
the



# The Stove for the young Plants.

Page 122.



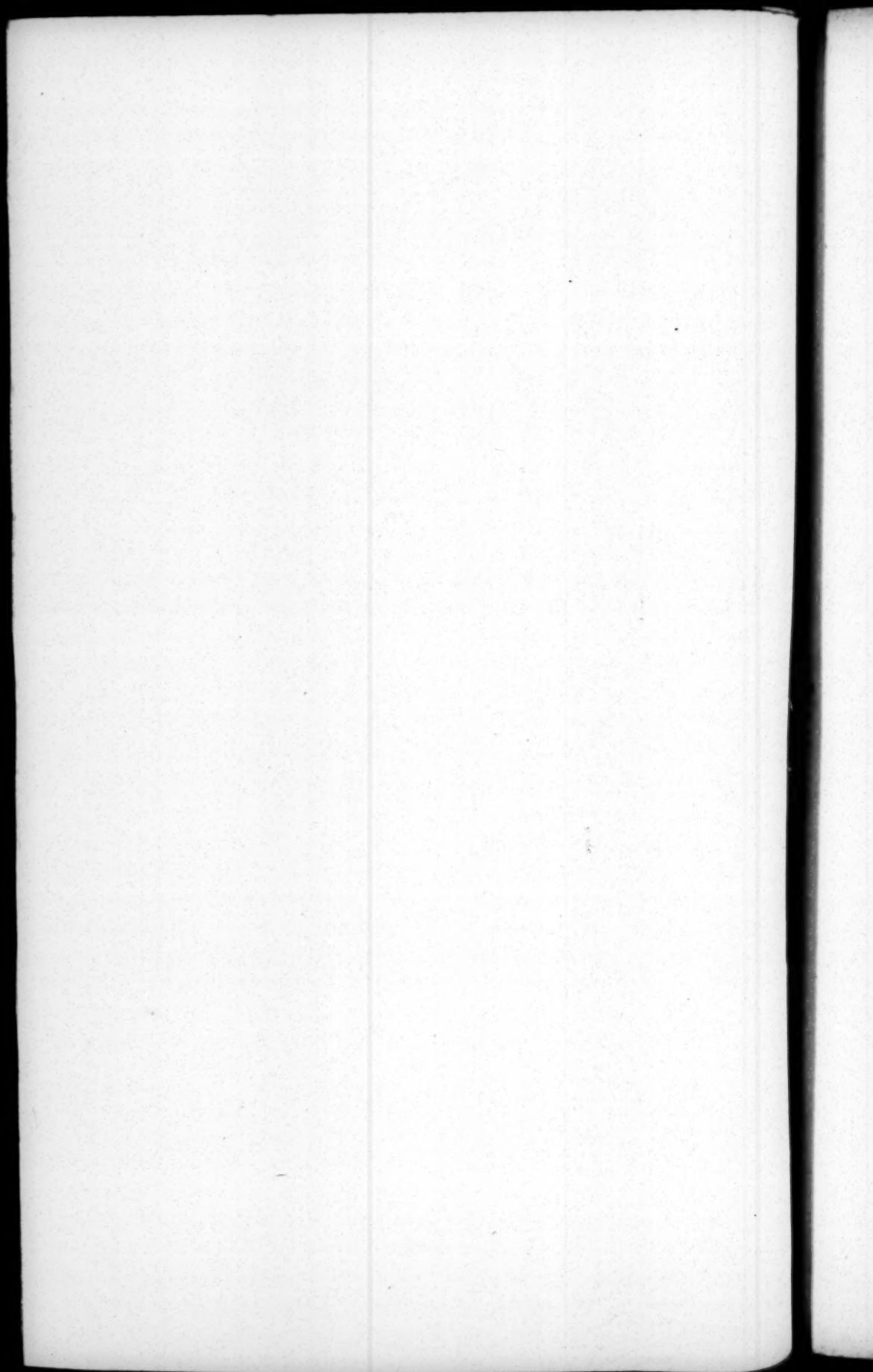
3 10 20 30 40 50 60 Feet.

# The Stove for ripening the Fruit.

Page 120.



5 10 20 30 40 50 60 Feet.



built on all sides with a stone wall, and the frame which may be three, four, or six lights, or twenty feet in length resting thereon: This pit of tan should be two feet above the surface of the earth, and one in depth below the surface, so as it may be three feet deep of tan, and caufewayed at the bottom: Others have these beds with a brick wall at the back, in which there are three flues and a furnace below to warm the air in winter; and here they nurse the young crowns and youngest off-sets in winter, covering the glasses with tarpawl-ings or thin board covers, having the thermometers in this

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the tan in winter, the bark pit may be sunk two feet deep in the ground, and raised one foot above the surface; the only walk which is necessary in these stoves, is, that on the back of the tan bed, which may be on a level with the surface of the ground, so that the tan bed will be more than one foot, above the walk, and the flues beginning from the level of the walk there will be room to return them three times; which will warm the air much more, with the same fire, than when they are carried but twice the length of the stove.

But in wet land, the tan bed should be wholly raised above the level of the ground, in order to preserve the tan from being chilled by moisture; and in such places the walk on the back should be raised near two feet above the level of the ground; because the tan bed should not rise much more than one foot above the walk; for if it is higher, it will be more difficult to reach the plants when they require water; the brick wall of the pit, on the side next the walk, need not be more than four inches thick, so far as rises above the walk; but below that, it should be nine inches thick. The reason for reducing the walk above, is to gain room for the walk, which would otherwise be too much contracted; and if there is a kirb of oak laid on the top of the four inch wall, it will secure the bricks from being displaced, and sufficiently strengthen the wall; which  
being

this nursery-bed, which are made by Mr. *Fowler* or by Mr. *Coles* in *Fleet-street*, which last are graduated by Mr. *Miller's* standard-thermometer in the physic garden at *Chelfea*, near *London*. And I should rather direct to have these frames done in the last method of having a brick back and flues, as it may serve both for summer and winter use: And it is very proper to have these frames at work as well as the stoves, where there are many fruit. The expence of erecting such a frame or small stove, will be sixteen pounds, and the annual charge three pounds, if you are near bark and coal, and

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being but one foot above the walk, will not be in any danger of falling; and on this kirb there may be two or three upright iron bars fixed with claws, to support the crown piece of timber, which will secure it from hanging in the middle, which in a great length is very often the case, where there are no supports laid under it; there may be more or less of these bars, according to the length of the stove; but if they are about ten feet asunder, it will be near enough. If these iron bars are one inch square, they will be strong enough to answer the design.

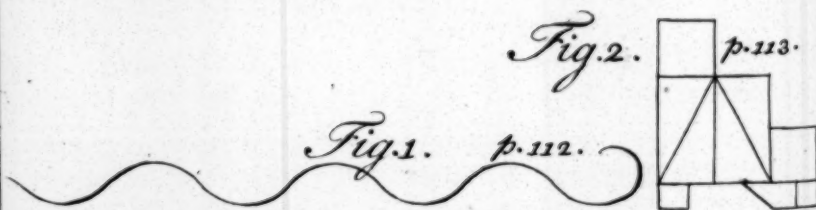
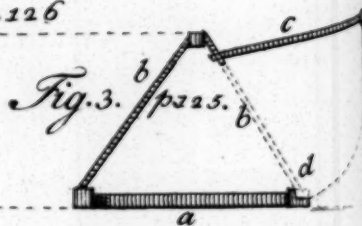
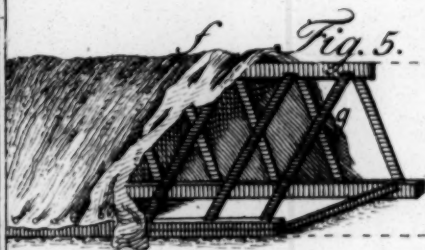
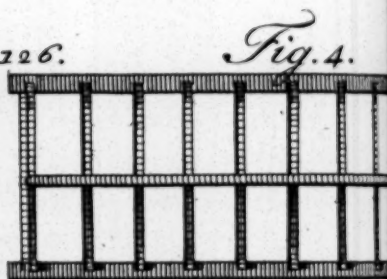
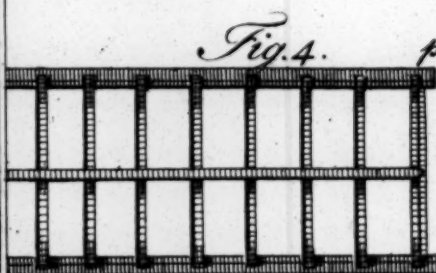
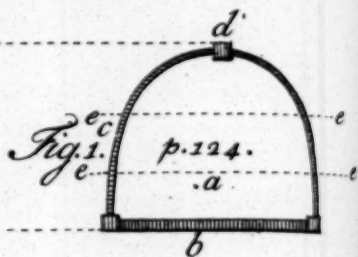
But as it is hoped that the annexed plan of this small stove will convey a clear idea of the whole contrivance; this will render it unnecessary to add any farther description here:

*An Explanation of the Plate which represents the two Sorts of Frames with oiled Paper for covering Melons.*

THE first of these frames is contrived like the covers of waggons; it has a frame of wood at the base, to which are fastened broad hoops which are bent over circularly, as is represented at fig. 1. The width of this frame should be from five to six feet, for less than five feet will not be sufficient to cover the bed, and if they are more than six feet broad, they will be too heavy



*Two Sorts of Frames with oyled Paper for Covering. Melon*



and therein you may ripen three dozen of fruit every year: Or, if a person who has not a big stove will bestow twenty pounds, he may ripen in such a stove sixty fruit, at the same annual charge. I would therefore rather direct these pines which come from *London*, to be planted at first, than put into the great stove, because here the air is sooner warmed, and there is more conveniency to give them air at the same time, than in the great stove: And I found it always of great advantage to have these small pits, and the great stoves, at work at one and the same time, the big stove for the fruiting, and the small stove for the young plants and crowns,

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heavy and troublesome to move. *a* Shews the section of the width; *b* the frame of wood at the base; *c* the arch of hoops; and *d* a small slip of wood which is fastened to the under side of the hoops, to keep them in their proper position.

The distance between each hoop should not be more than one foot, and there should be two rows of strong packthread or rope yarn on each side of the arch running from hoop to hoop at the places marked *e. e. e. e.* to keep the oiled paper from sinking down with wet. The length of each frame should not be much more than 10 feet, which will be sufficient length for covering three plants, that being about the size of a three light frame; for if they are longer, they will be heavy and troublesome to move; therefore there should be as many of these frames made, as may be necessary for covering the quantity of plants desired. Fig. 2. represents two lengths of these frames joined; *G.* shews the profile of the frame; and *H.* represents the paper turned back, that it may be seen how it is laid over the frame.

Fig. 3. represents the other sort of frame, which is contrived like the roof of a house; *a* shews a section of the base; *b b* the two slopes; *c* one of the sides which is contrived to be raised at any time to admit air to the plants;

crowns, bringing them on agreeably, until they are fit to plant into the big stove for fruiting; if a great quantity of fruit is desired, there may be one of these flued brick frames at each end of the large fruiting stove for more regularity, and a better shew to the spectators. A plan of which stove and nursery-bed I have here inserted. The walls of these stoves should be two feet thick, especially the back wall, that it may reverberate the heat the better into the stove. The flues of this stove should be thus disposed; the first flue two feet high, nine inches broad; the second flue one foot nine inches

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plants; *d* shews the place where this shuts down; and *e* the prop which supports it. If in the making of these frames every other light is made with hinges, so as to be raised, and on the opposite side they are contrived to rise alternately, it will be a very good method; for then air may be given at the side contrary to the wind, and in very warm weather, when the plants require a large share of air, they may all be raised on both sides, which will make a thorough air to the whole bed. Fig. 4. shews the plain of these frames, and Fig. 5. the same erected; *g* represents the profile of it, and *f* the covering of paper. This sort of frame may be made of pantile laths, or of slips of deal of like dimensions, because they should not be too heavy; but the base of the frame to which these are fastened, should be more substantial. Some persons who have made trial of both, recommend the latter for the convenience of giving air to the plants, for there is no other contrivance in the first sort for admitting the air, but by raising the whole frame on one side in proportion to the quantity of air intended to be admitted, and when the season is warm, they generally raise those frames on both sides, and permit the plants to run from under them.

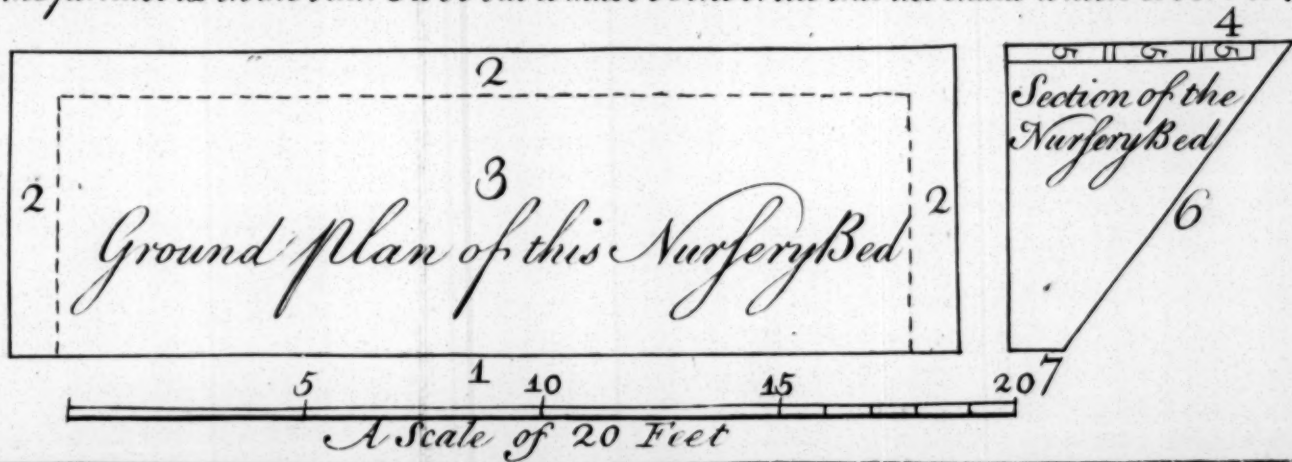
When these frames are made, if they are well painted over with the following composition, it will greatly preserve them, viz: to every six pounds of melted pitch, add



# PLAN of the Nursery Bed for the Crowns & Suckers of the fine apples.

1 the length of the Stove within Walls 20 feet. — 2 the walks at the Back and two Ends one foot each in breadth. — 3 the Tann Pit 18 feet long 5 broad and three feet deep. — 4 the height of the Back Wall 6 feet. — 5 three flues. — 6 Slope Glasses about eight feet long. — 7 the front Glasses two feet high. —

NB: the furnace as in the other Stove but it must be inverted into the Shade which covers it.



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inches high, the same breadth; the third flue fourteen inches high, and the same breadth; which three flues must be covered with bricks four inches thick; and if it is thought that the top of the third flue is too near the timber at top which keeps the glasses, you may add a foot or two more to the height of the back wall.

The plants which have come from *London*, will all of them have made good progress by the end of *August*, when it will be proper to look to the biggest plants, I mean such from which you expect fruit the succeeding year; and if they have filled the pots into which you  
planted

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add half a 'pint of lintseed oil, and a pound of brick dust; these should be well mixed together, and used warm; when this dries, it becomes a hard cement, so that no moisture can penetrate through it, and is the best sort of pigment for all timber exposed to the weather, I have ever seen used; so that where the colour is not offensive to the sight, it should be preferred to every other.

When the frames are thoroughly dry, the paper should be pasted on to the frames. The best sort of paper for this purpose, is what they call *Dutch wrapper*; this is strong, and when oiled over becomes pellucid, so admits the rays of light through it extremely well. After the paste is well dried, the paper should be oiled over on the outside, which if well done with lintseed oil, will be sufficient, for the oil will soak quite through the paper, so there will be no necessity for oiling both sides, nor for doing it over more than once. The oil should be dry before the frames are exposed to the wet, otherwise the paper will tear. In the pasting of the paper on the frames, there should be care taken to stretch it very smooth, and also to paste it to all the ribs of the frames, and also to the packthreads, to prevent the wind from raising the paper, which would soon tear it, when it became loose.

The

planted them at their arrival, with their roots, take them out of these pots, and plant them into larger pots, (two-penny ones at most) having first observed that their roots, and the earth about them, is wholesome and good; if otherwise, take such earth and such roots away, and give them new composed earth as formerly directed. Stir up the bark in that bed, and add some fresh to it, which will renew the heat, and put them into it again, where let them remain until *Michaelmas*, giving water, air and shading for three weeks after this transplanting, as was formerly directed. The reason why I prescribe transplanting the fruiting plants at this season is, that they may fill these pots into which they

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The above description, together with the annexed plan, it is hoped, will be sufficient instructions for any one who is desirous of making these covers, and what has been before mentioned under the article *Melon*, will be directions enough for the use of them, so that I shall only add one caution which may be necessary to repeat here, which is, not to keep these covers too close down over the plants, lest it draw them too weak, so that air should always be admitted to the plants at all times in proportion to the warmth of the season.

These covers of oiled paper, are not only useful for covering of melons, but are the best things to cover cuttings of exotic plants, when planted, that can be contrived; and are also capable of being used for many other purposes.

The paper will seldom last longer than one season, so it will require a new covering every spring, but if the frames are well made, and when they are out of use, laid up in shelter from the wet, they will last several years, especially if there is a band of straw laid round the melons, upon which the frames may stand, so they will not rest upon the ground, and the straw bands will prevent the damp from rising so as to rot them. These straw bands are such as are recommended for the hot beds of asparagus in winter.

they are now transplanted, by *Michaelmas*, when they are carried into the stove for winter, and where they are to fruit; so that when they come into the stove, and have filled their pots with their roots, by the new heat of the bark then applied to them, they will shew their fruit by the beginning of *January*, and these early fruits will be ripe in *June* and *July*, which are far preferable to fruits ripened later. As for the small plants which are not to fruit until the second year after their arrival. I do not chuse to unpot them until *Michaelmas*; because, if they were put into larger pots, they might fill them with their roots before they were put into the stove, and this might make them abort (if I may say so) and send up a small untimely fruit, a year before they should fruit. To prevent which, is a piece of nice and good management, and whereby I have seen numbers of young plants spoiled and undone, to the great loss of the proprietors; and to guard against such disappointments, I shall give particular directions, as I know no author, when treating of the culture of this fine fruit, has taken any notice of this misfortune which often happens to these young plants: Let your plants be always kept in a growing state, and not be stopped by too much cold, or too much heat, which will certainly make them run up to an untimely fruit, to prevent which must be your chief care and attention.

A fortnight before *Michaelmas*, provide a good quantity of new tan-bark from the tanners vaults, and laying it near the stove in heaps, so as the water may drain off, put it into the pit, and fill the same a foot higher with the bark than the walk about it; I mean, fill up No. 5. bark pit, and into this put all your largest fruiting plants. And here you may try an experiment which succeeded with me pretty well, which is thus:

I had been told there were some persons who had planted the *Ananas*, which they expected would produce fruit the following year, quite in the tan without the pots; being resolved to try an experiment, I used some of them in the following manner:

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When I brought them into the stove, I took twelve plants, and watering them well the night before, took them out of the pots, earth and all together, and made pits in the tan, which was, before planting them into it, in a very good temper; I made the pits one foot and a half diameter, and a foot deep, and then filled them up with the same earth, and covered the surface of the earth into which the pines grew, with a little old tan, that they might not dry too soon. I planted them at thirty inches distance every way, and placed them in one end of the pit, raising the tan near two feet higher than in any other part of the pit, and placing the pots, in which were the other fruiting plants, at the distance of five feet from them, that the tan, in that part of the bed, should not be disturbed, when the rest of the tan was to be renewed in *March*, in that part where the pines in the pots were put. These pines in the tan, I observed, fruited sooner than those in the pots, and were sooner ripe, their fruit was larger, but no better tasted; however, a person who has a number of plants, may try both ways. By *Christmas*, and in *January*, *February*, and *March*, the air of the house should be kept up to five degrees above Ananas heat, to encourage the fruit to swell, and water them often and gently, until the sun becomes stronger, but in a special manner when they are in blossom; for at that season, if there is not due heat and water given them, their fruits will not answer your expectation; but if the heat is then kept up, and water is given them plentifully, their fruit will soon swell to a good and desirable bigness. By the beginning of *March*, renew the tan in the pits where the fruiters in pots are, but never unpot any fruiting plants after they have shown their fruit, otherwise these fruits will be small, and late in ripening; observing, when the fruit shew their flowers, to keep a good and equal heat to make the blossoms expand well, that being one certain method to have large well-tasted fruit. By the beginning of *March* I would set all the young plants, and those which are not to fruit, after transplanting and trimming their roots, new potting

potting and earthing them, into the frames or summer-brick hot-beds, which I before described, giving them quite new tan in these beds: For if you neglect to do this in the first week of *March*, and do not unpot them, trim and new-earth them, they will very probably fly up into small fruit and stunted, as I said before; and this method of transplanting them at this season, is the best yet known to prevent these untimely productions, together with shading them, giving them due air, and watering them gently, as has been before said: Nor would I be fond of cutting off many of their leaves, which are bruised or otherwise hurt. These amputations are by no means to be used but where there is a necessity, for this reason, that plants much cut in their leaves, (as many persons do, alledging, that thereby the plants send out many suckers) has very bad effects. For it is certain, that the leaves of all plants and trees bear the same office to them, as the pulmonary vessels do to human bodies; if these are stopt or cut away, it is impossible a plant can thrive, when it is deprived of the means of perspiration and of respiration; besides, much cutting of any part of a plant, occasions much bleeding, which weakens the pines so, that instead of a fair large fruit, you have a small, bad flavoured, stunted, sickly production, which ought always to be avoided. Besides, if you want to take off some old or bruised leaves, take your knife and split them, and they will come off very easy. Observe when their leaves are of a florid green colour on their insides, and are of a good ash-colour on their outsides, and the leaves are well expanded, not cramped in, or hanging down, these plants are healthy. You ought also to provide yourself with some of Mr. *Fowler's* botanical thermometers, or Mr. *Coles's* in *Fleet-street*, which you should put up in several places in the stove, and particularly in those places that are most remote from the fire, for if the spirit of wine in the glass keeps up to the heat you desire, when there is no sunshine, then it is certain that the heat works well in the furnace and the flues. There is no need of using the thermometers in hot weather, for you

must then take them down, and put them in a cool place, otherwise the heat of the sun would so rarify the spirit, as to make it break the glass that contains it. When you water your pines, let the water be such as has stood in the stove for twenty-four hours, that it may be of the same consistency of heat with the air in which your pines are.

So soon as you observe your pines spotting in their leaves, take a pin and pick them off, whereby you will wound the leaf, and in the old plants you will observe a small insect there, which you must take away; and if you observe many of them upon the leaves, wash them with a sponge and water, wherein there has been made a strong infusion of tobacco-stalks; this will quite kill these vermin, which, if not timely prevented, might ruin whole stoves of pines; and if this method does not kill those vermin, take your plants out of the pots, take the whole earth from their roots, steep them in this infusion of water, repot them into quite new compost, after you have cleaned their leaves, stocks, and roots very well, give them quite new bark, shade them and give them gentle waterings, and they will recover in a few weeks. Those plants which are planted out of the pots into the tan, do not require so much water as those do which are kept in the pots. When the fruit is in blossom, you must be sure to keep a good heat in the stove, and at night the glasses should be covered with thin board covers, which should be so contrived as to slide in grooves made on purpose above the glasses: If the heat of the bark declines, add some new tan to the fruiters in pots, and if the same happens to the plants in the tan, take away carefully the old tan with your hand from them, until you come at their roots, and fill up the place with new tan, but disturb not their roots or fibres which will have spread far, and this new bark will bring them on to ripen their fruit kindly. It has been much complained of, that those Ananas which are planted into the bark entirely, do not fruit so surely as those which are kept in pots, and placed in the bark: I found this to be true, and was vexed that it was so; because

because those pines which were taken out of their pots, and put into the bark, gave me much larger fruit than those pines did which fruited in pots; but an accident directed me to a method by which I had larger fruit than any I ever saw, and which happened thus: A pot, wherein I had a fruiting pine, after I had placed it in new bark in *April*, broke; the fruit turned vastly large, being near twice as big as the largest fruit I had, and the fruit was ripe by the middle of *July*; when I lifted the pot out of the bark to cut the ripe fruit, I found the bottom and one side of the pot, wherein this plant grew, was quite broke and almost all away, and the roots of the pine had gone down more than twenty inches into the bark, so that when I lifted the broken pot and the plant, there were fifty fibres of an uncommon length hanging at the plant and the broken pieces of the pot; the fruit was very large, and admirably well tasted. This accident set me upon trying the experiment the following year, and my success was according to my utmost wishes. Wherefore, every year afterwards, so soon as I observed my largest plants fruiting, I made up a new tan-bed for them, and when it was of a good temperament to receive them, I took them out of their pots, with their earth about them, and planted them in the tan; when, managing them with that care I did the others, they answered my fondest expectations; and I am sure this is the best method to have good large pine fruit, and is a sure method too, providing you allow these plants to shew their fruit; which, whenever you observe, and your new tan can be got ready, take your plants out of their pots, and plant them and their whole clump of earth about their roots into the bark, so soon as it is fit to receive them; and by this method you may be sure that your plants will fruit, for the fruit must first appear before you put them into the full bark, whereby they will swell to a large size; for, indeed, plants put into the bark at *Michaelmas* preceding, do very often run to leaves and off-sets, but do not fruit; wherefore, it is best to allow them first to show their fruit, and then, and not till then, to trans-

plant them out of their pots fully into the bark: And then you may give all your fruiting plants a good watering all over their leaves; nor can there be any fear of the water's settling in the hearts of these plants, their fruit-stalks being there, and filling up that space, which in young plants is an empty tube, down to their hearts. By the time their fruit is growing fast, and swelling, there will be a great many suckers sent out from below the fruit, and some from amongst the leaves of the plant: Be not too hasty in taking these off, until they are pretty well grown, and that they are turned knobby at bottom. When you take them off, do not plant them, until you observe their wounds, in taking them off from their mother plants, are perfectly healed and dry; for if you plant them sooner, they will be in hazard of rotting.

By the good management above directed, the fruit of your pines will be ripe by the end of *June*, or in *July*, which you will easily perceive by the fruits turning yellow, by their emitting a vast fine flavour, and by the knobs of their fruit yielding upon being pressed by your fingers. These are signs of ripeness; but by experience, I found them always to be in the highest perfection of ripeness for present use, when their smell was strong and most poignant; if you suffer them to be too ripe, they soon turn most insipidly sweet, and have no more taste than a sweet lemon. Cut them about eight in the forenoon, with four inches of stalk to them; and when you are to eat them, hold their fruit or its stalk in one hand, and with the other twist off the crown at the top of the fruit, and it will come out of the top, like a ball out of a socket; then holding the stalk in your hand, cut the fruit into slices upon a plate, but do not lay one slice above another, as their rich clammy juice would make them stick together; and return the crown to the gardener for his use: Do not pare off their outward rind or skin, for thereby you will lose much of their delicate juice. When these fruits are to be sent to any distance, they should be cut a day or so before they are quite ripe, with a good part  
of

of the stalk and the crown at the top of the fruit; let them be put into a box wrapped up in paper, that they may be preserved from the air, which would make them evaporate and lose their fine taste. Be careful to clear the crown of all the pulp that is about its end which came out of the fruit, and lay it in some dry place for ten days: when you perceive the crowns and the suckers fit for planting, take halfpenny or farthing pots, according to the bottom of the plants, covering the holes at the bottoms of these pots with the most concave oyster-shells you can get, that the moisture or water in the pots may pass off, and not stagnate; plant them in the pots filled with the same compost as is directed for the old plants, water them gently, press the earth to their roots, and sink these pots with the plants in them into the tan beds up to their brims, shade them from hot sunshine, give them air and gentle waterings, until you perceive them growing, then you may give them sun, air, and water in the same method as is directed for the old plants. If they have filled the pots into which they were at first planted by *Michaelmas*, or the beginning of *September*, I would then take them out of the small pots, and plant them into three-farthing or penny pots, and renew the tan in the frame, and here they may continue until the beginning of *November*, and be afterwards brought into the stove, and placed in pit, No. 6. or continued in the flued frame all winter, which I described before; but be sure to take all these crown plants of last year out of the stove by the first of *March*; then trim their roots, and give them larger sized pots and new tan, which, transplanting and taking them out of the stove so early, will prevent them from flying up into an untimely and stunted fruit, which, at this season, if not transplanted and removed into the frame, they are very apt to do, and which they will also do, notwithstanding they are in the frames, if fresh air is not given them upon every opportunity of good weather, whereby they will not be pushed and drawn, as is the bad practice of many, but will become stocky, large, stout plants, for a good handsome crop  
of

of fruit the succeeding year, which is the proper time and season for their shewing their fruits. About the beginning of *July* will be the most fit season for looking again over your plants, and applying to them the culture which has been prescribed for plants which are to fruit the ensuing season. If from any of the old plants from which you have taken fruit which are very good, you are desirous to propagate suckers, if it is from these planted in full tan, repot their old roots when their fruit is cut, and sink them into new tan, and they will give you plenty of suckers; and if you choose suckers from old fruiting plants in pots, earth them anew, and they will give you many suckers in the same manner as the other plants do. The fuel I used was coal; peats will do well too, but I do not approve of wood fires, they being too hasty, violent, and of no continuance. Those plants which were vigorous in their fruit at their first appearing, I took from them the bottom of their pots, when I gave them new tan in *March* or *April*, but allowed the sides of the pots, or the greatest part thereof, to remain whole. By this method I had great success in having their fruit very large.

You may have windows at both ends of your stove, of what figure suits your taste, or according to the structure of your stove, not only to make it airy and handsome, but also to give you all the benefit of the sun's rays, which is of great service to your pine plants, especially in winter, and in the spring months: but if you have the torch thistles or *Cerus's* in the stove, you must have more wall than windows. In a word, the whole directions concerning the culture of the pine-apples are here given, to have their fruits large, good, early, and in a right season, *viz.* from the middle of *June* to the middle of *September*, but no later; for the rays of the sun at that time have not strength enough to give them that poignancy of smell and taste that they ought to have; and also to prevent the suckers and crowns of the former year from sending up small, weak, abortive fruit, the year after they are taken off the fruit, or from the mother-plant, and to cultivate them in  
such

such a manner as to keep them running to plants and leaves only for that year, and to become large, stocky, and healthy, to send up a large, strong, well-grown fruit the year after, which is the best season in which they should fruit, excepting the very small suckers, which may probably take three years before they shew fruit. This stove, which will ripen annually 250 good fruit, with the frames belonging thereto, should be placed on the opposite side of the kitchen-garden to that where the melonry is, and about 50 yards from the hot-walls, and either within or without the espaliers, as most suits your taste; observing, that the stoves and frames be so placed, that the tan carts or waggons can come so near them, that the tan may be put into them from the carts, to save the trouble, time and expences of wheeling it to the stoves, &c. That this stove may have some other curious plants besides the pines to adorn it, I would propose that the top of the second flue should have an edging of bricks built upon both the outsides of its top, one brick thick, and two deep, but not covered above; and betwixt these bricks, which must be set edge-ways upon one another, there must be laid four inches of sand, which becomes very hot, so as the sand will be like what the chymists call a *Balneum Mariæ*. The use of this sand, and the edgings of bricks, is to place therein pots, into which are planted the *West-Indian* and *East-Indian* melon thistles, the first called botanically *Melocactus*, or *Cactus*, and the second called botanically *Echinomelocactus*; the different varieties of which strange plants, with their flowers and fruit, will make a most beautiful and odd appearance in the stove.

I would also propose, that upon the end of the stove where the fire-place is, there should be erected a shelf of boards large enough to hold three or four pots, into which I would propose to plant one kind of the torch thistle, botanically called, *Cereus minor scandens trigonus articulatus*, *fructu suavissimo*, lesser three-cornered torch thistle, with a most delicious fruit, commonly called in *Barbadoes*, *The true prickly pear*, which fruit  
being

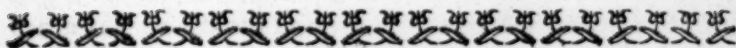
being as large as a *Bergamot* pear, is as fine a fruit as the pine-apple, and of which, in one year, I ripened three. Upon the other end of the stove may be a shelf of the same dimensions, for holding as many pots of another sort of torch thistle, called botanically, The *Cereus minor scandens polygonus articulatus*, or lesser many-cornered torch thistle, which has a charming large odoriferous flower, which opens about seven in the evening, and is quite gone by eight o'clock next morning. The flowers of this plant, for odour and largeness, surpass any flower yet known.

These torch thistles shoot out very long branches, which run along the walls and ceilings of the stove, upon which, if you lay some rough lime plaister, they will, like ivy, fasten their roots into, and prosper the better for it; both these and all the kinds of melon thistles thrive best when they are planted into sand, gravel, and lime-rubbish pretty coarse, and should be sparingly watered, except in very hot weather. The *Cereus's* are propagated by cuttings of their branches, which should be allowed to dry for fourteen days before they are planted, and may then with their pots be sunk into a good tan-bed to hasten their rooting, and this work should be performed in *June*, that they may make good shoots before winter.

The melon thistles are propagated either by seeds which they produce, especially the *Echinomelocactus*, or, when the caps of the *Melocactus's* are of purpose hurt, so as to make them send out suckers, which are planted in the same soil as the *Cereus's* or torch thistles. It is certain, that no plant amongst the vegetable tribes hath such a strange and odd appearance as these plants, and which merit an uncommon regard from the curious gardener.

Thus I have given my own practice in the culture of the pines, I proceed now to treat of the other necessary crops which should be in all good kitchen-gardens.

*Strawberries.*

*Strawberries.*

THE only sorts of strawberries worth cultivating in this country, are these: The *Virginian* or scarlet, the globe hautboy, and the greenish white or pine-apple strawberry, so named from the resemblance the taste this sort is said to have to the pine-apple fruit. The culture of all these sorts is pretty much the same. Whenever you design to make plantations of them, the ground, which should be a good fresh loam, ought in *August* preceding, to be very well trenched, and in winter laid up in ridges to get the benefit of the snow and frost, and in the spring following, should be again turned over to mould it well. If the ground is in good heart, do not dung it, for that encourages the plants to send out suckers and runners too much, from which you will obtain scanty crops and weak fruit. So soon as the mother plants, from which you are to take your off-sets, have done fruiting, lay out your ground in beds five feet broad, with alleys one foot and a half broad, that you may therein have full access to dress the beds and the plants, observing to take off for this plantation single heads only from their mothers (but no runners, for those would only produce spawns of runners, and no good fruiting plants) when taken off, plant the *Virginian* kind fourteen inches square, the *Hautboy's* two feet, and the pine-strawberry at near the same distance, into pits well watered (if dry weather) and keep them watered moderately until you perceive they have struck root; keep them clear from weeds whenever they appear. By the beginning of *October* they will have made good roots, and will shew well in this season, clean them again from weeds and runners, lay up the earth in the alleys two inches deep, where let it lye a fortnight, and then spread it on the beds betwixt the plants with a spade, and at the same time cut off their long shanked leaves; this is called winter dressing them. In

*April*

*April* clear them again from all weeds and runners, and dress the beds. When they are in bloom, if it is a dry season, water them plentifully to make them set their fruit well, which otherways they will not do; and be sure at this season to take off all their long strings and runners, by which means you will have good crops.

These beds of strawberries continue good only for three years; wherefore persons who are fond of this fruit, should make new plantations of them every year, for a certain succession, upon the failure of the old beds. When you water the *Hautboy* strawberries, if the ground and weather are dry, observe to lay some wheat-straw on the ground betwixt the plants very neatly, upon which straw the bunches of fruit will lye; this keeps the fruit in good order, dry, and the ground about these plants moist, which in their bloom, and for some time after, is of service to their fair fruiting.

The first season after planting, you may have a crop of the early *Lisbon*, or of the *Mazagan* beans betwixt the beds; and when they are done, pull up the haulm and dress the beds, but plant no more beans afterwards.

For furnishing our kitchen-gardens in this country with whatever is necessary, there are several seedsmen, in general well provided; their catalogues are pretty much as follow.

*Seeds of Roots.*

**P**ortugal Onion  
Silver skin'd Onion  
Red Spanish Onion  
Straßburgh Onion  
Flanders Onion  
English Onion  
Welsh Onion  
London Leek  
French Leek  
Large Orange Carrot

Early Horn Carrot  
English Parsnip  
Dutch Parsnip swelling  
Early white Garden Turnip  
Yellow Turnip  
French Turnip, long rooted  
Muscovy Turnip  
Large white Field Turnip  
Red top'd Field Turnip  
Green

Green top'd Field Turnip	Hamburgh Parsley
Salsafy	French Sorrel
Scorzonera	Candy Sorrel
Skirret	Green Purslain
Red Bett, or Beetraye	Golden Purslain
Shallot	White Mustard
Garlick	Sweet Charvil
Rockambole	Curl'd Endive
Early Salmon Radish	Broad leav'd Endive curled
Sandwich Radish	Italian Celery
Early London short top'd Radish	Celeriac
Turnip Radish	Melons many Kinds
Black Spanish Radish	Cantaleupe Melon
White Spanish Radish	Early prickly Cucumber
	Short Green Cucumber
	Long Green Cucumber
	White Turkey Cucumber
	Pompions
	Gourds

*Sallad Seeds, &c.*

Cabbage Lettuce	
Silefia Lettuce	
Ice Lettuce	
Imperial Lettuce	
White Cos Lettuce, or Versailles Lettuce	Seeds of Greens, &c.
Green Cos Lettuce	Round Dutch Spinage
Green Egyptian Cos Lettuce	Smooth French Spinage
Roman Lettuce	Prickly, or Winter Spinage
Green Genoa Lettuce	Mountain Spinage
Capuchine Lettuce	White Beet or Beet-card
Brown Dutch Lettuce	Green Beet
Lamb Lettuce	Cardoons
Curl'd Crefs	Gravesend Asparagus
Broad leav'd Crefs	Dutch Asparagus
Common Crefs	English Collyflower
Indian Crefs	Italian Collyflower
Common Parsley	White Brocoli
Curl'd Parsley	Purple Brocoli
Dutch Parsley	Turnip Brocoli
	Neapolitan Brocoli
	Early May Cabbage

Early

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Early York Cabbage  
 Early Dutch Cabbage  
 Battersea Cabbage  
 Sugar-loaf Cabbage  
 Alnwick Cabbage  
 Russia Cabbage  
 Large English Cabbage  
 Large Scots Cabbage  
 Green Savoy  
 Yellow Savoy  
 Curl'd Colewort  
 Boor Cole  
 Sea Cole  
 Small Kail  
 Kilmaurs Kail  
 Russia curl'd Kail

*Seeds of Pot-herbs, &c.*

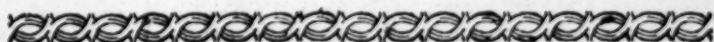
Succory  
 Clary  
 Common Marygold  
 Pot Marjoram  
 Columbine  
 Sweet Marjoram  
 Summer Savory  
 Winter Savory  
 Bush Basil  
 Sweet Basil  
 Thyme  
 Hyssop  
 Rosemary  
 Balm of Gilead, or Mol-  
 davica orientalis  
 Common Balm  
 Carduus Benedictus  
 Dill  
 Common Fennel  
 Italian Fennel, or Fino-  
 chia

Angelica  
 Virginia Tobacco  
 Caraway  
 Cummin  
 Anise  
 Coriander  
 Fenugreek  
 White Poppy

*Pease and Beans.*

Early Hessian Hotspur  
 Pease  
 Early Charleton Hotspur  
 Pease  
 Maple Hotspur Pease  
 Ormot's Hotspur Pease  
 Master's Hotspur Pease  
 Barn's Hotspur Pease  
 Turkey Hotspur Pease  
 Common Hasting Pease.  
 Dutch Hasting Pease  
 Essex Reading Pease  
 Nonpareil Pease  
 White Rouncival Pease  
 Green Rouncival Pease  
 Grey Rouncival Pease  
 Large Marrow-fat Pease  
 Dwarf Marrow-fat Pease  
 Spanish Moretto Pease  
 Large Sugar Pease  
 Crooked Sugar Pease  
 Crown, or Rose Pease  
 Short Dwarf Pease  
 Long Dwarf Pease  
 Leadman's Dwarf Pease  
 Dwarf Sugar Pease  
 Early Lisbon Beans  
 Early Mazagan Beans  
 Long Podded Beans  
 Turkey

Turky Beans	Speckled Kidney Beans
Windfor Beans	Black Kidney Beans
Toaker Beans	Barbary Kidney Beans
Nonpareil Beans	Oriental Kidney Beans
Green Genoa Beans	Battersea Kidney Beans
Early white Dwarf Kid- ney Beans	Canterbury Kidney Beans
Large white Dutch Kid- ney Beans	



## Onions.

**F**ollowing the order of this CATALOGUE, I shall begin with the culture of the seeds of such roots as are necessary for a good kitchen-garden, and the first which present themselves are the seeds of the onion; of which these five sorts are best, *viz.* The Strasburgh, the Silver-skin'd, the Welsh, the Chieves and Escallions, and the Portugal or red-skin'd onion. I shall also here insert the culture of shallots and Garlick, as they may well be reckoned, for the poignancy of taste, amongst the onion kind.

The Strasburgh onion seeds should be sown by the beginning of *March*, in good rich kitchen garden ground, which has been well dug in *September* or in *October* before; and I would advise the ground to be trenched and laid up in ridges at the before-mentioned seasons, that it may reap the benefit of the snow and frost in winter to mould it, and the dung (which in hot sandy grounds should be cow's, and in clay soils horse's) may be laid in the bottoms of the ridges to rot in severe seasons, and delv'd into the ground in *February*. I also would chuse to sow my onions in beds, and not in fields, because this way they are better weeded and thin'd, when one sits in the furrows of the beds, than if a person was to go into a field and spoil more of the crop with his feet, than he can do good to it with his hands or a hoe. Besides, there may be crops in the  
furrows

furrows of the beds, in case one has but a small garden, as you shall see most proper.

These beds may be four, or at most five feet broad, and of such length as the ground will allow. They must be kept constantly free from weeds, at first thin'd to two inches, bulb from bulb, and afterwards to six inches, as you see your onions swell in bigness, for the more they are thin'd, the larger they will grow; and it will be time to pull the bulbs quite out of the ground, when you perceive the tops of their grass to grow yellow, and fall, which happens in *August*, if they are sown upon sandy grounds only; for in clay their stalks will continue much longer in full verdure, and will stand upright: Wherefore, if you perceive the onion bulbs in these grounds do not swell well, go over their green stalks and grass with your hands, and lay them quite down, which must be done in dry weather, and this will make your onions swell fast, and in a month's time they will be ready for taking quite out of the ground, which must also be performed in dry weather; then lay them in a situation where they can have plenty of air and sun, and they will be ready to be housed in a fortnight or three weeks. When they are put into the house, let them have air and be well turned, and if you perceive the necks of the bulbs thickish and bull-necked (as the gardeners term them) twist them very hard with your fingers, and this will prevent their springing, and keep them sound for winter use. If the frost at that season is very severe, they may be hung up in warm places in nets, or dry wheat-straw may be laid over them.

The culture of the silver-skin'd onion is the same with the Strasburgh onion, so needs not to be here repeated; they have a far milder taste, and a more beautiful appearance than the Strasburgh Kind.

You may also sow some seeds of the Strasburgh onion about the 12th of *July*, for fallads in winter. These will stand very well in moderate winterr, for spring, or even for winter use, and their culture is the same as that prescribed for the summer crops. Observe to give these

these seeds which are sown at this season a larger and deeper cuffling, or cover, than those which are sown in *March*, otherways the frost may take the young plants out of the ground in winter, which will, by using the above means, be prevented.

But there is an onion that is better for spring use, at present neglected to be sown in our kitchen garden. This is the *Welsh* onion, which is sown in *July*, in beds four feet in breadth, and in length as you please. Give them a good cover over their seeds, and in ten days they will appear above ground; keep them quite clear from weeds, and by *November* their leaves will die down entirely, at which time throw up the earth in the alleys on the beds, and rake them gently over. About the beginning of *February* they will appear again very strong, and against *March* will be very fit for all kitchen-uses: They taste very strong: If they are too thick, you may take up some of their roots the end of *March*, and plant them out into beds, or let them stand, and they will give you good seeds in *September*. These roots will continue good in the ground five or six years; but it will be proper to make new plantations of them once every three years to continue a good succession of them.

The culture of the Portugal onion being the same as that of the Strasburgh onion, I need not repeat it.

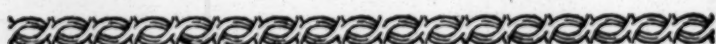
Chives are propagated by parting their roots, which should be planted in light rich soil, in *July* or *August*, five or six small heads in one patch, at one foot distance every way, and in beds or borders four feet broad, observing to keep them clear from weeds, and if you would have them early, they must have a South-east aspect. Here they may continue for some years, and you may make new plantations of them at pleasure; the same method of culture is to be given the Escalion.

Shallots are taken out of the ground in *July*; when their green blades begin to wither, make use of their greatest heads; but to increase them, you must take their smallest single-cloves, but not those which have off-sets, being sure that they have good bottoms for

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pushing

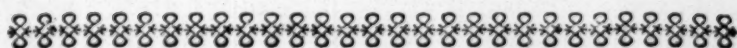
pushing out their fibres; plant them into beds of a fresh, rich, sandy soil, at six inches distance, clove from clove, about the middle of *August*; they will produce fine large heads against *July* following, observing to lift them as soon as you perceive the tops of their blades to turn yellowish; do not at any rate defer planting these young bulbs until the spring, and be sure to plant the smallest single oblong cloves for that purpose. *Garlick* is propagated in the same manner; but if in *May* you perceive it inclines to spire up and seed, then twist the tops of the blades, which will prevent its feeding.



### *Leeks.*

**L**EEKS are cultivated in the same way as onions, and are in the same manner sown in all respects: About the beginning of *July* take your largest and best rooted leek plants, and having cut off their long blades three or four inches, more or less as they are in length, and trimmed their longest fibres, plant them into a piece of rich light earth, made up into beds four feet broad, six rows in a bed; by this means, if they are kept clear of weeds, they will grow very big in their heads, and will be much larger than those which are not transplanted; besides, thinning the seedlings will be of great use to them. Some persons sow leeks and onions promiscuously, alledging, that when the onions are taken off, the leeks may remain. But this method is what I would never advise; because to lay down the onion tops in clay ground to make them bulb well, will prejudice leeks sown in the same place: For the operation to make the onions swell, must be performed with the hand; whereas, if you judge it fit to top your leeks, it must be done with a knife. The *London* leek I prefer to the *French* leek, but you may have both sorts.

*Carrots.*

*Carrots*

THE two sorts mentioned in seedmens catalogues, are what are only cultivated in gardens in this country. There is another sort which has a whitish root, and is very sweet for table use, but it is not sown here.

When you sow carrots, take their seeds and rub them well betwixt your hands, that they may separate; for by the hairy substance with which their seed vessels are covered, they adhere close to one another. I chuse to sow my first crop of carrots about the middle of *February*, upon a wall border which has been dunged the year before, to have them early; and for this crop I use the early horned carrot; but when you sow carrots in sandy grounds, or any other light seeds, tread or stamp them in with your feet before you cover them, to prevent the wind in those light grounds from blowing them off the ground where they are sown, which often happens to carrots, parsnips, lettuces, onions, leeks, &c. About the 10th of *March* I sowed my general crop of the orange carrots in beds four feet broad, on the ground which I had used for my onions the former year, having dug it in *October*, and laid it up in ridges to mould by the winter's frosts. I observed always to sow in calm weather, and sometimes put in some seeds of radishes and cabbage lettuces amongst them, but no other crops whatever. My last sowing of carrots was about the middle of *July* for winter, or rather for spring use. In *October* I take up my large carrots, and cutting off their tops, lay them in dry sand, in a place where no frost can get at them, and use them in winter. It will be requisite to keep your carrots very clear from weeds, and to thin them where they are too thick, to three, and some times to five inches, root from root, if you would have them large; whenever you take them out of the ground, ridge the same,

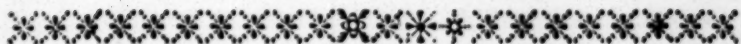
and expose it to the winter's frost, for no ground keeps vermin longer than that wherein carrots have been sown; to kill which, I have often mixed the same with unslacked lime, with which, and winter-ridging, I cleared my ground from the eggs and nests of vermin, which would otherways have been extremely hurtful to my succeeding crops. The well digging of the ground allows the carrot roots to run deep down. When the other crops, to wit, radishes, &c. which were sown with early carrots, are drawn out, the carrots remain for swelling, and are much the better for having the earth stirred about them, by taking off the radishes, roots of the lettuces, &c. Carrots may also be sown in out-fields to fatten cattle, which in general, they do much better than turnips.



*Parfnips and Beetraves.*

**T**HE *Dutch* swelling parsnip is the best sort for kitchen use: Their culture is the same with that of the carrot; wherefore it is needless to repeat it here, only when you thin them, they must have more space than the carrots. I have often sown red beets or beetraves amongst my parsnips, with very good success; and since I have mentioned the red beet, they differ in nothing from the culture of the parsnip, but in this article, *viz.* If they are sown in hot dry land, they fly up and spire to seed in *June* or *July*, which makes their roots small and sticky. To prevent which, suffer them to run up six inches, then cut the stalk close to the ground, and hoe up a little earth to the plant, and their roots will thereby swell considerably, and be fit for use: When I sow them with parsnips, I only drop a few of their seeds amongst the parsnips; and when I sow them by themselves, I thin them to one foot, plant from plant. The best beetrave is the round turnip rooted kind.

*Turnips.*



### Turnips.

THE most common sorts of turnips used here, are ; Round white *Dutch* early turnips, yellow turnip, long *French* turnip or *Naveau*, green *Dutch* turnip. The first is what is mostly used in this country for early crops, and for eating raw in *May* and *June*, of which people here are very fond. To have them very early is a great ambition amongst our gardeners : In sandy grounds you may succeed very well by sowing them in *February*, and you can pull them in *May*; but by laying matts and straw above your beds thus early, you can in hot sandy land have turnips very good by the beginning of *May*. So soon as they have five leaves, it will be proper to weed them and thin them, which is all the culture they require ; and the fresher and more virgin the earth is, the sweeter and more tender they will be. I would always chuse to sow them in beds four feet broad, which for these early crops are better managed than if they are sown in the field manner. If the weather is very dry in *March* or in *April*, be sure to give them water twice in the week, about six in the morning only ; for was you to water them at night, the evening frosts might kill them ; and if you was to water them in sunshine, their leaves might be scorched. If ever you perceive the black fly attack them, lay in some lime or bear chaff below them, and water them well at the hour above mentioned, which will destroy these vermin effectually.

In clay grounds sow a few beds of them pretty thick, and when you observe them above ground, lay matts at night over them to shelter them from the frost, taking the covering off in the day time to give them air ; but unless it be very dry, be sparing of your water in these soils, and observe not to sow them upon dung'd land.

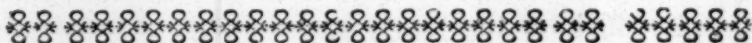
The second season for sowing is from *April* to *August*,  
L 3
after

after which no turnips should be sown, and then beware of the black flies.

Of the yellow turnip you may have a few for variety, and if they are sown upon moist ground, they eat very well boiled in the kitchen way. But the long *French* turnip is the best for seasoning soups or hodge-podge; for two of these in seasoning will give a higher flavour than a dozen of other turnips, though they are neither fit to be eaten raw or boiled, but are for relishing and seasoning soups, &c. These I would not sow until the middle of *April*, and as they are not fit for eating, a few of them go a great way.

The green *Dutch* turnip may be sown in the garden, even in the field way; and as their culture is the same as what is prescribed for the other sorts, such as weeding, thinning, or tipping them (as gardeners call it) at proper seasons, I shall not repeat what I have already said of them.

The other sorts of turnips mentioned in the catalogue here, are not so fit for kitchen-garden use.



*Salsafy and Scorzonera.*

THE culture of these two roots is much the same, wherefore I shall treat of them together.

The best way to have them in perfection is to sow their seeds about the middle of *March*, in beds four feet broad, and with a line lay out four rows in this bed, then sow two or three seeds at most in one hole, at eight inches distance, hole from hole, and cover them. When they come up, keep them very clear from weeds; and if two or three roots are too many in one hole, thin them to one, or at most two plants, and be sure that your soil has been well dug, that their long topt roots may run easily down and swell well. In *October* their roots will be fit for use, that is, boil them first, then slice them longways, and fry them with butter and flour, and they will eat well, and are very wholesome.

The

The young stalks or sprouts of these plants which remain in the ground until *April* or *May*, the year after they were first sown, are esteemed a very delicate dish; for you may use them as you do asparagus, and many persons say they are much better and more delicate.

*Radishes.*

The ordinary sorts of radishes are,

- 1 Early Salmon.
- 2 Richmond.
- 3 Sandwich.
- 4 Short topt early *London*.
- 5 Turnip.
- 6 Black and white *Spanish*.

'The best kind of these radishes is the short topt early *London*, because it is very hardy, and its small tops do not prejudice any other crops amongst which it is sown. They are sown at different seasons. If you have a warm sandy soil, you may sow them on a border near a Wall in *January* or the beginning of *February*, together with cabbage or princeps lettuce, to have them in *March*; and it will be necessary to sow them, from that until the beginning of *April*, once every fortnight; but, excepting the two first sowings they will be better sown in more open places, than upon wall-borders, where they are apt to shoot or turn sticky. They may also be sown amongst carrots, for after the radish crop is gone, the carrots remain; and in pulling up the radishes, you may have an opportunity to clear your carrot-ground of weeds. Some persons sow radishes in *August*, to eat them in *September* and *October*, and some sow them amongst their winter spinage.

The turnip radishes should be sown in *February* and *March*, and as they are hardy, and come in early, they will be fit for use in *April* and *May*, but are not good afterwards, being apt to fly up and shoot; and I would always chuse to sow this sort by itself. The ground

where all radishes are sown, ought to be very well trenched, and immediately before sowing to have a deep spading, that their roots may have full scope to run down, otherways they cramp and stunt, and are good for nothing.

The sandwich or prince's radish, and the salmon radish, require the same culture with these above mentioned. The salmon sort is named so, from its colour like salmon.

The two kinds of Spanish radishes must be sown each sort by themselves, for the white are eaten in *October*, and the black are eaten in winter. Sow them upon middling kitchen-garden ground, which must be first trenched, and at sowing season well spaded, to allow their roots to apple well; amongst them you may sow a few of the brown *Dutch*, and capuchine lettuces, which may afterwards be transplanted into proper places, where they are to stand. The black Spanish radish should be taken up in *November*, and preserved in sand, which also hinders frosts from attacking them, if they are carefully housed from the severities of winter.



### *Skirrets.*

**T**HE skirret is one of the best roots we have in the kitchen-garden, though scarce in the markets, because the culture of them, by the neglect or ignorance of our kitchen-gardeners, is despised. My method of cultivating this root was thus:

I sowed their seeds in the beginning of *March*, on a most rich soil (having ridged and drest it fine in *October*, that the winter's frost might mould it) on beds five feet broad; and making holes six inches distance every way, I therein dropt the seeds covering them up, and observed to keep them very free from weeds. After they came up, if the spring or summer was very dry, I watered the plants plentifully; but if any of them attempted to run or fly up to seed, I cut them  
down

down to within two inches of the ground, and laid some of the earth in the alleys, finely made by a spade, upon the top of the beds, that being a sure way to keep their roots growing and cool, which is the best method to make them tender. Their leaves drop in *October*, when putting a piece of stick near to each hole where they were sown, as a mark where to find their roots, their leaves being gone, and that in taking them up with a spade, their roots might not be bruised. Thus they might be used, as occasion offers; for if you take them out of the ground any time before you use them, they shrivel and soon become good for nought. In great frosts cover the beds with a good coat of litter, and make your marks long, to be above the litter, so that when you remove it, you can easily find the roots whenever you want them.

These plants are likewise propagated from the off-sets of their tops, but the roots of those are so sticky and small withal, that I would never advise any person to propagate them in that manner.

*Lettuces.*

- 1 Cabbage.
- 2 Silesia.
- 3 Imperial.
- 4 Ice.
- 5 White Cos, or Versailles Upright.
- 6 Aleppo.
- 7 Brown Dutch.
- 8 Capuchine.
- 9 Princess Lettuce.
- 10 Egyptian green Cos Lettuce, which is the best Lettuce yet known, for all uses, and is hardy.

There are several other kinds of lettuces in the catalogue, but those here mentioned are the best assortments, either for sallads, or for the kitchen use: wherefore I shall confine myself to treat of the culture of these alone.

For

For winter use I would sow the cabbage, capuchine, and brown Dutch, the beginning, the middle, and the end of *August*, but no later. Lettuces sown about the first of *August*, will cabbage by *November*; but the first frosts that set in, entirely rot and destroy them. Those sown about the middle or end of the month, will not cabbage before the end of *March*, or the first ten days of *April*. Some persons sow at this season (I mean in *August*) the ice lettuce, and the end of *September* transplant them upon a border very near a wall, where they will remain safe if the winter's are mild. In *April* they again transplant them into a rich border, and in six weeks they will cabbage and bring fine heads. The beginning of *March*, and once every fortnight, until the end of *April* you may sow cabbage, fiesia, imperial, aleppo and ice, and the *Egyptian* green cos lettuces. When the ice or cos lettuces have eight or ten leaves, transplant them into a good, rich piece of ground, eighteen inches, plant from plant; water them until they have taken new root; and when you perceive them closing in the hearts, tie them up with bafs twisted, and they will blanch and cabbage far better and firmer than those which are not transplanted, as I have often experienced. Many gardeners sow their lettuces amongst their onions, but this I would never advise, as it does harm to both crops, especially to the upright white *Versailles* lettuce, which infallibly rots by this management.

Lamb lettuce or *Valerianella* may be sown in *August* in a bed of good kitchen-garden ground: If you delay to sow them until the spring, they will not come above the ground until the spring following: However, keep their beds clear from weeds; and although they do not appear the first year, they will come the second in great plenty. The aleppo lettuce is only valued for its fine spotted leaves, which make a pretty variety amongst other lettuces. The green *Egyptian* lettuce is the best sort yet known, its culture is the same as the *Versailles*, or white cos lettuce.

*Cresses.*

*Cresses.*

- 1 The Common.
- 2 The Curl'd.
- 3 The broad leav'd.
- 4 The Indian.

The three first sorts, if desired very early, may be sown upon moderate hot-beds, and in the spring they may be sown upon beds well exposed to the sun, where they may be cut when young, observing to sow them in drills, and to sow the curl'd and broad leav'd sorts at a greater distance than you do the common sort, that their leaves may not be crowded, which would rot the plants. You may sow some cresses in *August* to stand the winter in the common ground for sallading, which they will do in a warm exposure and in mild winters.

The *Indian* cress may be put into holes in beds with your finger in *April*, at eighteen inches, hole from hole: Their flowers are used in sallads, and their seeds, when young gathered, make an excellent pickle.

*Parsley or Apium.*

- 1 Common.
- 2 Curl'd.
- 3 Dutch.
- 4 Hamburgh.
- 5 Celery.
- 6 Celeriac.

The culture I apply'd to these plants, was so far out of the common methods used with them, that I cannot omit being particular upon this article. Most gardeners sow the common sort in drills in *February*, whereby the plants are very thick, and are crowded upon one another, in such a manner as to be quite useles for the purposes for which they are designed; which is, that the plants be well furnished with leaves, which can never

ver be by sowing in drills. Wherefore it was my practice to sow these seeds very thin about the middle of *February*, in a good open spot of ground; and if I thought them too thick, I thinn'd them to four inches, plant from plant, or more, keeping them clear of weeds, by which means they had twenty leaves for one they have in drill-ways sowing, their greatest beauty consisting in the number of their leaves.

The curl'd is cultivated in the same way, but if you leave it six inches, plant from plant, its fine curled leaves will make a noble appearance for garnishing dishes, or any other use. Observe not to allow it to run up to seed, which kills it, when otherways you may preserve it in grand leaf and beauty for three years after sowing.

The *Dutch* parsley, as well as the *Hamburg*, are only valuable for their roots, which boiled in broth are used medicinally in decays of any kind; they are cultivated in the same manner as carrots are, but be sure to hoe and thin the plants to five inches square, and keep them clear from weeds. Their roots will be fit for use in *August*, and will continue good until *March*, if they are sown upon a good, rich, light soil.

I could not omit here treating of the celeri, and the celeriac, as they come under the botanical name of *Apium*, as well as the parsley, and of some new methods I used to cultivate them by.

The best season for sowing early celery is the middle of *February*, upon a moderate hot-bed, under a framed glass, or under a bell, covering the seeds very thin, and watering the earth before you sow the seeds, which you put upon the dung six inches thick, in order to make the seeds germinate the sooner. In about five weeks after sowing, the young plants will appear above ground, and if the weather be good, they must have all air in the day-time, and at night they should be only covered with a matt; if it is a dry season, you should give them water twice a week. When they have five or six leaves, you should plant them out into a nursery bed at one inch distance, plant from plant, and shade and water them,

them, until you perceive that they have taken root: Good fresh garden earth will do well for this nursery bed. In *March*, and until the middle of *April*, you may sow celery and celeriac upon beds in the open ground, but no later than *April*, as the celery you have planted out into the nursery beds in *May* will be large the latter end of *June*. At that time you may take off the largest plants, and having made ridges from North to South, of what length you please, in a piece of ground which has been well dunged the *March* before, and upon which you may have sown the earliest crop of lettuces, plant them in this spot. Your ridges ought to be four feet, ridge from ridge, two feet in depth, and well wrought at bottom, that the fibres of the celery may have full scope to run and play at pleasure, by which means they will have large roots. In three weeks after planting they will begin to grow large, and their leaves and stocks advancing gradually, and together, (by which I mean, that they do not shoot or spring in a hurry) it will be proper to lay earth to the under part of the plants, but it must be done always in dry weather, and upon no account whatever must you make this operation in wet weather, or when the earth is wet, for by this means your celery would rot, or the part you desire to be well and cleanly blanched, would canker, spot, and become sticky, hard, ill-flavoured, and good for nought. Observe also that the roots of your celery are to be earthed only within one inch or two of the tops of their hearts; which, if you was to cover all at once, would infallibly rot and choke the plants; wherefore, as their stalks grow, you are to earth them up in the manner here proposed, which will make them have fine, large, broad, and well coloured stalks, and eat crisp and tender; if you observe any of the plants to shoot or fly up, or shew their seed vessels, these may be used for soups, but are not to be used in falladings; and by *November* the seeding plants of these early, as well as of the later crops, should be pulled out; for on the approach of frost they rot, and are very apt to infect the neighbouring sound plants, nor are you at  
once

once to earth up your celery, but as it grows, and by degrees.

To have celery extremely large, I used the following method, and I found it to succeed extremely well, which I discovered by the following accident.

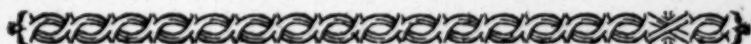
I had some celery plants, for which there was no demand in the kitchen, which stood and flowered and seeded very well in the ridges. Observing that some of the seeds had been shaken when they were ripe in *September*, I raked over the ground, and covered the seeds: By the beginning of *October* the young plants came up, and there happened a pretty mild winter, few or none of these young plants suffered, but held out very well. By the middle of *March* I transplanted them into a good rich nursery bed, and shading and watering them, until I perceived them growing, I kept them clear of weeds, and they grew stocky and larger than the plants which were sown that spring. However, fearing, if they were too soon ridged, they might fly, and become rampant and sticky; about the end of *May*, I again planted them out into a second nursery bed, shading and watering them as in the first bed, when I ridged them in *July* and *August*, and never had such large, tender, well blanched celery as they were, not one in a hundred plants offering to fly; this experiment I tried several times with the same success; and I am persuaded, that if many of our kitchen-garden seeds were sown in autumn, we would have more success with them than when they are sown in the spring, for they form good roots in autumn when the weather is gentle and mild; whereas they are hurried up by the sun in the spring and summer, without forming sufficient roots or fibres to maintain in vigour what is above the ground. *Celeriac* is used the same way.



*Sorrel.*

**T**HE *French*, or round-leav'd sorrel is the best of all the kinds. It is propagated by seeds sown in *August*, or from slips planted at one foot and an half distance, plant from plant (as it is a great runner) in a good middling soil, and in an open situation, or upon a South-east-aspected wall, to have it early. In summer, when you perceive the plants running up to seed, suffer them to run three inches high, and then cut them close down, by which means the plants will in autumn push out new leaves and new heads for new plantations.

The great broad leav'd sorrel comes earlier than the *French*, and should be cultivated in the same manner, with this difference, that it must have more space as the leaves are larger.



*Purflain.*

**B**OTH the green and golden purflains are equally good for use, although the green is preferred by the market gardeners. To have it early, you may sow it upon a moderate hot-bed in *March*, and about the end of *May* you may transplant it into a rich bed in the open ground, whereby it will grow very large, and must therefore be planted at half a foot distance, plant from plant. In *May* you may also sow it in the open ground, where it will be fit for use six weeks after sowing; in dry weather it requires to be well watered; but before you sow it, water the ground well, then sow your seeds thin, and afterwards putting on a thin covering, rake the ground, and water it in dry weather, until you observe the young plants are above ground. This makes a good pickle also.

*White*



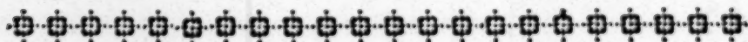
*White Mustard.*

THE seeds of this plant are sown in *December* or *January* upon hot-beds, so that in a month after sowing they are ready to cut, which is best when the plant has two, or at most three leaves, for if they have more, they are by far too strong. You may sow them thick in drills upon the border of a South-aspected wall, where you may have them ready to cut for young salading in *March*, and in *April*, until lettuces and other fallads come in.



*Sweet Chervil.*

SHOULD be sown in autumn, immediately after the seeds are ripe, in a moist shady spot of the garden, where it will thrive better than in any other exposure, and if you hinder it to seed, it will continue for some years.



*Endive.*

THE curl'd broad leav'd sorts are only fit to be cultivated in kitchen-gardens: The proper seasons for sowing are betwixt the 20th of *June* and the 12th of *August*, upon a bed of good kitchen-garden ground. When the plants have got five or six leaves, they should be transplanted into a spot of good well dug earth, at fourteen inches distance, plant from plant, and should be well watered until they begin to grow again; and when you perceive they have got a good number of leaves, take some bass-mat threads, and with one hand gathering up the outer leaves, be careful to dispose the inner

inner leaves regularly, and tie them all up near the tops of the plants, and in three weeks time you will perceive the plants to be blanched and fit for use. They at this time will send out, or rather burst out, their inmost white leaves below the tying of the busses, whereby you will know, that all their hearts and inner leaves are well blanched, and are fit for use.

There is another method of blanching endive, which is used for winter and spring blanching, *viz.* In dry weather lift your endive plants, and with a round headed dibble plant them into the sides of the ridges of good, rich, well dug earth, which are made sloping sideways to the sun, covering the plants in such a manner, as that their tops are only above ground, whereby the plants will be secured from frost, and the rain will, by the sloping of the ground, run off. In three weeks the plants will be sufficiently blanched for use, but do not keep long; wherefore it will be proper to keep planting thus at every seasonable opportunity. During the cold seasons, and in very hard weather I have kept this blanched endive in earth and sand in the house, for four weeks after it has been quite blanched. Instead of tying up your endive for blanching, lay boards on it when full grown in the heart, and in fourteen days after, it is better blanched and neater every way.

Of melons, cucumbers, gourds and pompions I have treated fully, when writing of the melonry and hot-beds suitable for a good kitchen-garden. I proceed in the order of the catalogue to treat of.

### *Spinage.*

The best sorts are.

- 1 The prickly for winter use. And,
- 2 The broadest leav'd for summer use.

The most proper time for sowing the prickly small leav'd spinage for winter use, is from the 20th of *July* to the 12th of *August*, and I would sow it in drills, rather

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ther than in the field way, because it is much easier cleared of weeds. This sort may have some of its largest leaves cropt off in *October* and *November*, and may be used through the winter, but must be then cut sparingly; for if it is cut too much, or too near the stalks, it will be in danger of rotting by severe frosts in *January* and in *February*; wherefore use it gently, and it will continue good until *May*, when the large leav'd spinage succeeds to it. Take care in sowing it that your ground be not too dry, for in very dry weather in autumn, it will come up with the seed-vessels on its tops, whereby it will be good for nothing; nor should it be sown on too moist ground, whereby in winter it might perish by wet and cold.

The summer spinage you may sow about the end of *February*, and from that time every fortnight until the beginning or middle of *April*, as you have demands for it, upon moist ground, to keep it from running to seed, to which both these sorts are very apt to shoot. Amongst the spring spinage you may sow a few early short topt *London* radishes, and you must thin it well on account of its large leaves, in such a manner, that the leaves do not interfere with one another: ten inches distance, plant from plant, will be enough for the large leav'd spinage. The seeds of the largest kinds of spinage are smooth, whereby they are distinguished from the winter prickly small leav'd sort.

### *Beets.*

Of these there are two sorts:

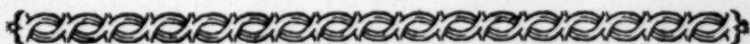
- 1 Green Beet.
- 2 White Beets with a large stalk, commonly called beet Chard or swiss beet.

The red beet or beetrave I have formerly treated of.

The green beets should be sown in *March*, on a moist piece of land well dug, but not over rich; and the better

ter the soil is wrought, the more liberty the roots will have to swell, and produce larger leaves by far, than those roots which are cramped in an unwrought soil. The leaves are a good and wholesome pot-herb, and their natural bitterness may be cured by blanching or steeping them in water before they are used. If they are sown too thick, they must be well thinn'd; and if you sow, or rather drop them amongst carrots, the better will your crops be; for the carrots being drawn off in summer, the beets will remain, and be much the better that the ground be stirred about them, by clearing off the carrot crop, provided you then rake over the ground. You may also plant in the ground a straggling crop of Savoy for winter and spring use.

You may sow at the same time your crop of beet-chard, thinning and cultivating them in the same manner, and they will do very well; but observe, that as the beet-chards are only valued for their large flat stems, not to suffer them to run up to stems the first summer, but cutting their stems quite down, their roots will be thereby much stronger to send up large, flat, broad stems the second year, which in soups, or fryed by themselves, make a delicate dish; but they are more proper for soups, in which, by their easy dissolving, they make a very agreeable ingredient, adding a delicate oily substance not to be imitated by any other herb I know. Wherefore it is necessary to sow these seeds every year, that the kitchen may have a constant supply.



*Charadoons or Prickly Cinara.*

THESE kitchen plants are not used commonly by our kitchen gardeners here; but as there are some gentlemen, whose gardener cultivate them for the use of their masters tables, I shall give them my own practice, by which I had them very good, and of great length and size, in which their excellence con-

sifts. The best time to sow them is in *March*, upon good, rich, light earth, which should be kept clear from weeds, and so soon as the plants come up, they should be well watered: When they have five leaves, prepare beds of the same consistence of earth with that wherein they were sown, and therein transplant them from the seed beds at one foot distance, plant from plant, and water them well until you perceive them growing, laying up the earth to their lower parts, as you do to cabbages to make them stocky, and clearing them from weeds: They may remain here until the middle or the latter end of *June*, or to the 10th of *July*.

Then prepare a piece of rich sandy earth, and lay it up in ridges as you do for celeri, at six feet distance, ridge from ridge, and near three feet deep. Observe, that the bottoms of these ridges be well dug, so as the roots of the plants may have full play. These cardoons will be fit to be blanched by the 20th of *August*, which should be thus done: In dry days prepare some wheat straw ropes, which are better than hay or any other straw, gather up their leaves in a regular manner, observing not to bruise or break them, tie the ropes round, to within six inches of their tops, when the plants are quite dry; and above these rope-tyings, bank up the earth at that time as far as they are tied, but no farther, lest you choke the plants and rot them; and as they grow long, tie and earth them as occasion offers. I have had them with stems well blanched three feet long and sometimes more. The earliest cardoons will be blanched for use in *October*, and will continue to *December*, if the frost do not rot them; and in severe frost they may be housed with other kitchen stuff.

*Artichokes.*

*Artichokes.*

**T**HE only good artichoke cultivated now in gardens, is that sort called the red artichoke, which is better than the green kind, has larger bottoms, and eats much sweeter. I shall therefore treat of them, although their culture will very well agree with the other kind: But my practice in the culture of these plants, being very different from that used by the gardeners here, I must be excused to give particular directions in this article. By my method, fruits may be continued from *June* (or even from *May* in some seasons) until *October*; but as this cannot be obtained, but by making annually new plantations, these should be performed in the following manner. The *October* before you intend to plant your artichokes, lay out a spot of ground sufficient to contain the quantity you design to plant, four feet, row from row, and three feet, plant from plant: Trench the ground very well, and ridging it, let it so remain until *February*: In *November*, after the trenching, put upon it a good quantity of very old well-rotted dung, and mix all well together, observing to break all clods of earth or dung so well, that there may be no lumps or stops in the dung or earth, to hinder the play of the fibres of the artichoke plants at any season, for these must always have full and free space, otherwise your crops will not do according to your wish. About the middle of *March*, take the best off-sets from your artichoke plants, and those only which have fibres at them, which are well formed and are stocky; these you may know by taking away the earth from about your old plants, and feeling these suckers or off-sets with your hands, that they can easily, and without wounding them or the mother plants, be taken off. Nor would I chuse such suckers which have fruited, because the roots of those are sticky, nor do they produce such large fruit as younger suckers do, I mean such, whose roots cut crisp and tender.

If your suckers have come from a distant garden, and have lain by for some time, I would advise to wash their roots well, and before planting, let them lie four or six hours in water, before they are put into the ground, this will refresh them much, will expand the vessels near their roots, their fibres especially, and will prepare them for striking root soon. Plant them at the distances above specified, watering them well until you perceive them growing: Betwixt their rows you may have a crop of spinage and radishes, or a few collyflowers, but no other crops. In *August* and *September* they will produce you handsome fruit, which, when you cut, be sure to take down their stalks also, to within one inch of the ground; for nothing makes a stronger plant, nor more early fruit the ensuing season, than cutting quite down these stalks after you have gathered the fruit; and I have often cut the stalks and fruit of my young artichokes, some small space of time after they appeared, that the plants might be strengthened for bearing a good crop the ensuing year; and in this part of my practice, I had great success, especially where my plants were weak, which often produced fruit before stronger plants.

About the twenty-fifth of *October*, I cut off the largest and longest leaves of my artichokes to within six or eight inches of the earth, and digging the surface of my ground, I laid it up about the plants in the manner as you do when you trench ground; and if you apprehend that this earth is not rich enough, you may in the bottom of these trenches lay the dung of your oldest and best rotted hot beds, but by no means lay new dung or litter near your plants, as is the bad practice of many; for this landing up your artichokes, will defend them very well from all Winter frosts, and the old dung may in the Spring be dug into the ground to enrich it, and to strengthen the plants in such a manner as you may depend upon very good crops. I also tried an experiment with my artichokes, which I cannot omit inserting here, and with which I had most extraordinary success. In *June* and in *July* I gathered a  
good

good quantity of sea-ware, and mixed the same with fresh earth, and about a fourth part of old dung, and a small quantity of good lime, such as the farmers use to their wheat-land ; and toss up the whole into a heap, turning it over once every fortnight or three weeks, that it might ferment, mix and rot well, so as to be fit to land up my plants the end of *October*, and the Spring following I dug this compost down amongst the earth wherein my artichokes were planted, whereby I had some extraordinary large bottoms to my fruit ; but as this method of dunging these plants cannot be used but near the sea coasts, I have already proposed another method of dunging them. Observe never to dung artichoke-land but once in three years, although you must lay very rich land to them, or very near the plants every winter.

When you smooth your ground betwixt these plants in *March*, it will be proper first to remove the earth about them with a spade from their roots, and with your hand take off all the off-sets or eyes from their roots, leaving at most two good ones only for fruit ; and if any more appear above ground afterwards, pull them up, and observe never to allow more than one fruit to continue upon a stalk, and when you cut your fruit, cut down the stalk close to the ground at the same time. This was my practice in the culture of artichokes, wherewith I succeeded so well, that had my fruit been brought to market, I could have had three shillings *per* dozen, when others were sold at one shilling *per* dozen. If your artichokes are weak in the Spring, hill them up with rich earth, and they will recover.

*Asparagus.*

*Asparagus.*

**B**EFORE I mention the culture of this plant, I must inform my readers, that he who has a large field of asparagus should never save seeds from weak plants, but from plants which are never cut, but preserved singly for the purpose of producing seed: Neither should fields of asparagus, which are in use to be cut, be suffered to bear seed, for such seed is only the produce of their smallest buds, which are not worth cutting for the table or for the market, and consequently seeds saved in this manner are small, weak, and are not, nor cannot, be good. The best seeds of this plant are had from *London*, near which capital are the finest fields of asparagus in *England*.

When you have provided yourself with seed, lay out a spot of rich garden light earth, into beds five feet broad, and an alley of one foot and a half in breadth. Take your seed the day before you sow them, and put them into a vessel with water, and what are good will sink to the bottom, what are husky and empty will swim, and must be thrown away; then take your line, make five or six rows in this bed, and therein drop your seeds, three by three, at half an inch distance, covering them with an inch and a half of earth; keep them quite clear from weeds during the Summer, and if *April* and *May* prove very dry, give them a little water. In *October* when you perceive their straw or haulm turn yellow, cut it down, and laying two inches of the earth from the alleys on them, cover the same in *November* with three inches of well rotted old dung, to prevent the frost from injuring the crowns of the young plants.

At this season, in some well exposed part of the garden, trench a spot of fresh light earth, two spade and one shovel deep, and ridge it up to receive the benefit of the Winter snows and frost: Provide yourself at the same time with a good quantity of old well rotted dung, which if it is not so well rotted as you could wish, one  
Winter

Winter will perform that work, provided it is well spread and wrought in that season, which is the most proper for rotting all sorts of manure.

About the tenth of *March*, open your ground again, and at the bottom of each trench or bed, wherein you are to plant the roots, lay in a good quantity of this well rotted dung, in such a manner that it may be seven inches below the surface of the earth, above which lay the earth that came out of the trench five inches thick above the dung, levelling it very well, then lifting your young plants from the bed, wherein they were sown, with an asparagus fork, which is better than a spade, as being not so apt to wound their roots, which is of greater consequence to them than many people apprehend, open a large drill fit for holding them, and laying it high in the middle, upon this hill plant your asparagus roots at fourteen inches distance, plant from plant, and cover them over with two or three inches of this good earth. You must make the beds five feet broad, with an alley betwixt each, of one and a half broad.

Upon these beds, the first year only after they are planted, you may have a crop of onions thin sown; and laying in some rotten dung in the alleys, mixed with their earth, you may also for that year have a crop of collyflowers; all which will be taken up before *October*, when you dress your beds for Winter, which must be thus performed: About the 20th of *October*, when you perceive the asparagus haulm turning yellow, cut it down, and spading the ground in the alleys, lay the same upon your asparagus beds, and before the frosts come on, cover your beds six inches thick with the best rotted dung of your oldest hot beds, which will protect your beds from frosty injuries during Winter; in *March*, or the beginning of *April*, dress them with an asparagus fork, which will not harm the young crowns of your grass; keep them always clear from weeds, and the refuse of the dung which comes off these beds in their Spring dressings, may be dug into the alleys for collyflowers or Brocoli; but plant no  
beans

beans in these alleys, they being a sort of poison to your asparagus roots, and crop no more your beds with onions after the first season. By observing the Winter-dressings in *October*, and the Spring-dressings in *March* or the beginning of *April* regularly, you may cut good asparagus the third, altho' it will be better to defer it to the fourth year after transplanting them.

Most gardeners in cutting asparagus, take the biggest buds, and leave the smallest; but from experience I am quite certain, that this is a most erroneous practice; for when the sap in *October* descends to the root from a strong large bud, it gives a double force to the root, as that which it can receive from a small faintish bud; wherefore, from a root that sends up four buds, two small, and probably two stocky large buds, I would always cut a big and a small bud, or I would preserve the two largest buds for the first two years after cutting, and snip off the two small ones. I am quite certain, that the roots managed in this manner, will be capable of giving large buds afterwards, as long as the plantation continues, which, by good regular care and management, may be twelve or fourteen years.



#### *Collyflowers.*

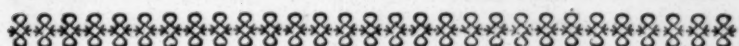
WHAT collyflower seeds are got here by our Seedsmen, from the Seedsmen in *London*, are not altogether to be depended on; for they must take the common run of the market, good, indifferent and bad, all mixed through one another; but the best way for a gentleman, or a kitchen-gardener, who carries his collyflowers to market, to provide himself, is to give a commission to a Seedsman at *London*, for his best and earliest collyflower seeds, and they may depend upon being well served.

To have very early collyflowers in this country for the market, where a gardener cannot get more than one shilling or two at most for a flower, is not worth his pains;

pains ; but as this performance will probably be in the hands of most sorts of persons, I shall here give them my practice and my observations. Provide yourself with seeds of the earliest kind, sow them upon an old cucumber or melon-bed the 20th of *August* at farthest ; and in hot sunshine shade the bed, and in dry weather water them gently ; for if they are hurried up, they become too long in the shanks. So soon as they have got fit leaves, transplant them into a spot of fresh, but not over-rich earth ; for if they are put into earth too rich, it hurries them on to flower, which I have observed some of them to do in mild Winters ; shade and water them, until they begin to grow : about the middle of *October* transplant most of this sowing into light earth, made up into such beds, as you may upon occasion cover with some of your cucumber frames in very severe weather ; observing when you cover them, if very severe weather comes, to do it to purpose, and to take off all their decayed leaves, and in all temperate days to give them as much air as you can. With respect to what plants you would have early, plant three of them under one of your largest bell-glasses in rich ground, or you may plant some upon a very rich South-aspected border, near a wall, to take their chance of the Winter ; but both these sorts of plants that you set out for good, should have a very rich, dry and sandy soil, in which they will succeed much better than in clay. If any of your plants upon the wall fail about the beginning of *March*, you can supply them from those you have under the bells, or under frames, which must have air in mild weather, covering them only at nights, or in very cold inclement days ; by which means you will have one collyflower under one glass only, which is as much as one bell can contain, when their leaves are become large, and they are hastening to flower ; you must now draw up the earth to the shanks of these under bells, and prop up the bells, that they may receive air, and in mild weather, these bells may be taken off entirely. I am not fond of watering these plants, especially in sunshine ;

shine ; for water given at this time most certainly scalds their leaves, which ends in the entire ruin of their flowers, making them small, yellow and frothy (as the gardeners term it.) When you perceive them begin to flower, which by good management may about the end of *May*, break their inmost leaves, to shade the flowers from the sun, whereby they will keep white and firm for some days, until they arrive at their full bigness, which you may know by the flowers seeming to break and open ; then pull them up root and all early in a morning ; if for immediate use, cut off their leaves, but if you intend to keep them for some days, let their leaves remain, and keep them cool. As for the plants next to the walls, either these transplanted from under the bells and frames, or those which have stood out the Winter in that situation, about the end of *February* should be hoed up and hill'd, drawing the earth up to their under-leaves ; but if you have radishes and young lettuces between them, as the kitchen gardeners often use, take off the radishes, before you begin to earth up your collyflowers ; and when the radishes are off, earth them up as far as you see convenient, but do not water them except in extreme hot weather, which does not often happen in this country. Take also great care to pick off snails, who now come out to feed upon their green leaves, as a delicate morsel, after their long confinement during the Winter, sculking in the crannies of walls, where they hide themselves, and then creep out to feed on the first herbage they can meet with. If, before you hill up your plants, you observe these snails attacking your young plants, lay some strong barley-chaff by the roots of your plants ; this chaff will wound them in such a manner, as to make them desist from their attempts, or if they still persist, lay a good mulch of tobacco stalks, steeped in vinegar, around the lower parts of your collyflowers, and this will effectually destroy them. By the middle of *June*, the collyflowers will shew their flowers, at which time use them, as has been directed for the early sorts, under bells, and they will do well ; but observe

serve always to be sparing of watering them, excepting in very dry weather : such as were preserved under the frames, should be planted out the beginning of *March*, where they are to flower, observing to give them the very same culture as those upon wall-borders, already treated of; by this means you will always have a succession, until these sown on moderate hot-beds in *February*, begin to come in on the natural ground in *August* and *September*; or those sown on the natural ground in the beginning of *May*, which last may be continued until *November*, or later in mild weather.



*Brocoli.*

**I** Proceed to the culture of the different sorts of Brocoli. And here I shall mention a method entirely new, which I used myself, whereby I had brocoli in its greatest perfection. I prefer the white brocoli, or what is called the neapolitan brocoli, which I would advise to be sown the beginning or middle of *February*, upon a wall-border aspecting the east : So soon as these plants have got five leaves, transplant them into a more southerly aspect, upon a very good rich soil, where they may remain.

The reason of this transplanting is, that they may thereby acquire more fibres, which culture I always chused to give to such plants as require to be transplanted, whereby they suck much more nourishment from the soil, than those plants which are continued in their seed-beds, and not transplanted; for by every transplantation they acquire a new race of fibres, and of consequence, if they are twice or thrice transplanted in nursery-beds, they acquire twice or thrice more strength, and are a great deal better in their productions, than those plants of the same kind are, which you have not transplanted.

In order to have your brocoli to produce well, it will be very proper to transplant them into the furrows or alleys of your onion, carrot, or other kitchen-stuff beds,  
the

the beginning of *July*; and preserving them from snails, and hilling them up, they will produce most noble heads in *January* and *February*; its a crop will hold for a considerable time, and many persons esteem them more than they do the best collyflowers; by sowing some of them very early in the spring, the most forward of them will succeed your autumnal-sown crops of brocoli, by which means you will have always a succession of crops of this excellent kind. The *Roman* or blue brocoli I would always sow by the 10th of *March*; and when they have got five leaves, transplant them from the seed-beds into nursery-beds, at three inches distance plant from plant; and keeping them clear from weeds, they may there continue until the end of *June*, against which time they should be planted out into a good soil in rows, three feet distant, and two feet plant from plant in these rows; for if they are thicker planted, they spire up too much: You must hill, dig, and keep them quite clear from weeds, and in *November* they will show their heads in the center of their plants, which, as soon as they do, and in any season (except in very severe frosts) must be cut off, and used in the kitchen, that their side-sprouts may advance in the spring, and may be used for the table; this will be fit for service long after the other kinds are quite gone off. All brocoli prosper best in a rich loamy soil, not much exposed to the sun; but they should never be planted under the drop of trees at any rate. The turnip brocoli has nothing curious in it, excepting that their roots are shaped like a turnip above ground, from which proceeds the brocoli, and which makes a very odd appearance.

*Cabbages.*

*Cabbages, Savoy's, &c.*

THE best early cabbages are the early Yorkshire, the battersea, and sugar loaf; these should be sown the end of *July*, upon an open spot of ground; when they have got six leaves, they should be transplanted into beds of the same earth at four inches distance, that they may grow strong and stocky; and about the end of *September* they may be planted out into a good rich spot of ground amongst your winter spinage, which when it is taken away in the spring, you should draw the earth up to the stems of your cabbages, whereby they will be much strengthened, and in *May* they will be turning in their leaves for cabbaging; then it will be proper to tie some of the most forward ones up with bals strings, or small fallow twigs, to blanch their innermost leaves, by which means you will have cabbages ten days sooner, than if they were not so used. The battersea and the sugar loaf cabbages are treated the same way, and are sown at the same season; but the battersea being subject to fly up, I prefer the sugar loaf to it. After your early cabbages are gone, you may ridge your ground for celeri, celeriac, endive, &c. There is a sort of cabbage, called musk cabbage, which is now neglected, and not inserted in our seedmens catalogues; but for taste and flavour, no gentleman should want some of them in his garden; it is managed in the same manner as the alnwick cabbage, and is in use from the beginning of *October* until *Christmas*; and as they are apt to suffer in very severe winters, either house them, or, laying up your ground in ridges, pull them up by the roots, and lay them sloping upon their sides, covering their stems with the ridge of earth up to their undermost leaves, which will preserve them in good condition until *February*, by laying straw above them. The large *English* alnwick, red *Dutch* and large *Scots* cabbages, may be sown in *August*, or the end of *February*; but in this country I prefer autumnal-sowing of cabbages; and when they have six leaves, plant them out into beds at  
five

five inches distance. In *October*, if your land be dry, plant them out at three feet distance every way; but if you have a wet soil, it will be proper to defer this work until the beginning of *March*, keep them clear from weeds, which you can do easily whenever you draw the earth to their stems, which may be done in *April*, and be repeated as you find necessary; and when you have transplanted them, if the weather is dry, often water them, until you perceive them to grow.

The green favoys for an early crop (that is, such as become large in *October* or *November*) should be sown in *July* the preceding summer, and may be put out into nursery-beds in *October*, where they may stand the winter, and in *March* should be planted out for good, at two feet and an half distance every way, in some open piece of ground, neither near hedges, nor under drops of trees, where they are very subject to spire up and are often attacked by vermin such quantities as to be quite eaten up by them.

You may also sow favoys in *March* for the following spring's use; and by managing them as I have said, they will do well.

The kilmaurs kail are the best of any for boiling in winter, in the same manner as you use spinage; but they will not eat tender until they are well pincht with the frosts. Sow them in *March*, prick them out into nursery-beds at three inches distance in *May*, keeping them clear from weeds; you may plant them out for good in *July*, into ground where you have had your early crops of pease, and giving the land dung, plant them at one foot and an half distance every way; water them until you perceive them to grow: In *October* hill them up, and keeping them clear of weeds, is all the culture that these kail and coleworths, or open kail demand.

*Clary.*

*Clary.*

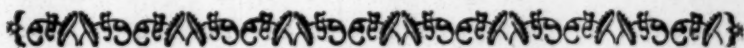
**T**HE common garden clary must be sown in *March* in a bed of fresh earth, from whence in *June* you may transplant it into beds of the same soil, where keeping it clear of weeds, it will continue for some years.

The marygolds and columbines I have treated of in the floristry part of this work, so they need not be here inserted.



*Sweet Marjoram and Pot Marjoram.*

**I** Never used any of them but the sweet sort, which is an annual plant, and the perennial kind, which is a green-house plant; the annual kind is sown in *April* upon a moderate hot-bed, where it may continue until the middle of *June*, against which time it will be proper to plant it out into a bed of fresh light earth, watering and shading it until you perceive it growing: In *August* or *September* it flowers, which is the proper season for pulling it up. The bush basil is cultivated the very same way, and must be taken up also when it is in bloom.



*Thyme, Rosemary, Balm, and Dill.*

The sorts that are cultivated in gardens are:

- 1 The common.
- 2 The variegated ditto.
- 3 The Lemon.

All these (excepting the first) are propagated from runners or slips planted in the spring into almost any soil; where watering and shading them until you perceive

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ceive them take, is all the culture they require. The first sort may be sown in the spring upon a lean dry soil, in which they will thrive better than upon any other soil, and continue good for many years.

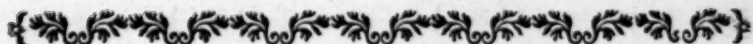
Rosemary and balm of gilead, and balm and dill, are cultivated the same way. The balm of gilead is propagated by sowing its seeds in pots upon a hot-bed in *March*, and in *June* thereafter the plants may be transplanted out into as good and rich soil as what you put into the pots, or you may transplant them from their seed-pots into other pots, putting at most two plants into one pot, and putting the pots into a green-house, or, for want thereof, under a hot-bed frame, cutting down the stalks; and in *May* following you may transplant them out for good into the soil above mentioned, and when they are in bloom, cut down their stalks, dressing them for your use. This was my practice with this odoriferous herb, by which means I had always a succession of it for family use.

The common balm is propagated by planting slips thereof in *March*, in beds of good fresh earth five feet broad, and alleys betwixt them of one foot and an half broad; take care to water them, if the weather be dry, and keep them clear from weeds.

There is a sort of balm, with the leaves finely blotched with yellow and white; this must be planted in a very lean soil, that the variegation of its leaves may be preserved: The common sort makes fine tea by an infusion of its leaves, which is an excellent remedy for the lowness of spirits.

Dill is propagated by seeds sown in *March* upon beds of light earth: If they are too thick, hoe them out to ten inches a-part; keep them clear from weeds, and in dry weather water them; these plants are very fit for persons who pickle quantities of cucumbers, as they give a fine relish to these pickles, and several other things.

*Fennel*

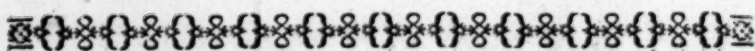
*Fennel and Finochia, or Italian Fennel.*

**T**HE common fennel is propagated by sowing its seeds immediately after they are ripe, and in the spring transplanting them into beds of good earth at about one foot distance. Whenever the plants spire up and shew their seeds, cut them down, that they may not drop their seeds upon the ground, for then it will be difficult to root them out of the earth, their roots remaining many years afterwards.

The Finochia, or sweet *Italian* fennel, is but little used in this country. However, I shall here give my own practice, by which I had it very good.

I got my Finochia seeds annually from *Legborn*, where I had a correspondent. About the beginning of *April*, sow them in drills six inches, seed from seed; the soil should be a rich light earth, upon a border of a south-east aspect wall: If the weather is dry, you may gently water the drills, until the plants appear above ground, which will be in four weeks after sowing; observing to keep the ground free from weeds. The drills should be two feet from one another, and they may be four or five inches deep: If you take out every other plant that comes up, they will be near enough, for the more space they have to grow in, the larger they will be.

In one month's time after appearing above ground, their lower parts will knot, and become big and tumid, just above the surface of the earth, at which time it will be proper in dry weather to lay earth on them, in the same manner as you do to celery when you blanch it, which will make them eat crisp and tender; yet this must not be done all at once, but as the plants grow in height. For a succession you may continue sowing, and giving them the same culture until the middle of *June*, after which it is too late to have them good.



*Pease.*

I HAVE treated of raising pease upon hot-beds, in which I used the dwarfs only; wherefore I shall not repeat it here, but cannot omit another method by which I had pease very early; in *September* I sowed some of the dwarfs, and of Master's early hotspur pease in pots, and sunk them in the common earth, and so soon as the frosts set strong in, I brought them into a place near my green-house, where they might receive no injuries from the frost; and near the windows within the house, I made a border of good earth, fresh, but not dunged; and by the beginning of *December*, when the young pease were stocky, I raised them out of the pots by a trowel, and with a clump of earth I planted them in this border at ten inches in the rows plant from plant, and three feet row from row, that they might have space enough, and give them a little water to settle the earth about them. Upon all occasions I gave them suitable air, and drew up the earth to their roots as long as it was requisite: When they were in bloom, I gave them a good portion of water, which before using had stood in the house twenty-four hours, that it might be of the same temper with the air in the green-house, and supporting the hotspurs with reeds, I had a good crop of pease by the tenth of *March*, and removed their haulm, and all the earth, when their crops were quite gathered.

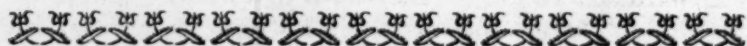
I may be condemned for setting those plants in a green-house, where the other plants might from these early pease imbibe too much moisture; but every article considered, and taking care not to water the other plants too much, when these were growing, I had no loss by it. Such a method of having an early pease-crop does well for an experiment, yet I should not advise it to be always practised in such houses, especially wherein plants are necessarily crowded.

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The pease which succeed these forced crops are, the early Hessian, the Masters, Charleton, and the Reading Hotspur. In warm sandy grounds, and upon south-wall borders; they may be sown the end of *October*, or beginning of *November*; and as they advance, draw the earth over them, which will protect them very well; also lay some pease haulm above them in hard frost; but be careful, whenever you perceive the pease advancing and expanding their leaves, to earth them up only to their leaves, but no farther, lest you thereby rot their leaves and stems at the same time, as I have often observed, by this unskilful management, was the case in wettish land.—If this crop holds, it is well, but if it does not, you may sow as many the end of *November*, the beginning of *January*, and the beginning of *February*; the last of which I have often observed to hold as well, and better, than any of the former crops, and they require the same culture in all respects: I would also recommend, when sowing them, to place two rows pretty close together, that is, within ten inches of one another, and betwixt these two close rows, and the other two close rows, you may leave a space of two or three feet. The reason of this sowing is, that the stakes to uphold these two rows being placed in the middle, may support them at once; whereas, in the common way of sowing these pease, every row must have a row of stakes: The gardeners who vie with one another for the earliest pease, never put stakes to uphold their pease, alledging, that it gives liberty for the pease to grow too much to haulm, and not to fruit, and that the early fruit will thereby be protracted from ripening so soon, as if they had no stakes. I admit this may be the case in sandy soils; but in claylands, if the pease (especially the large kinds, such as the marrowfats, sugars, egg, rose and rouncival pease) are not staked, or sown at very great distances, row from row, they will infallibly rot, before they are fit, or can be fit for table-use, because of their long and great haulms.

In *April* and *May*, it will be proper to sow the large sorts of pease, such as the marrowfats, rouncivals, rose, crooked sugar pease, and Dutch Admiral pease; but after you have in *February* sown your early hotspurs, let them be succeeded by the *Spanish* Morrato pea, which is very hardy, and a very great bearer; and be sure to give the large pease above-mentioned great spaces of good fresh ground to grow upon; stint them not in land, for upon this the goodness of your crop depends, three feet two rows from two rows, and five inches pea from pea in the rows, is a good medium; if you give more space, the better, and give them good flaking poles to run upon.

By the end of *May* sow all dwarf pease, such as dwarf marrowfats, short and long podded dwarfs, Leadman's prolific dwarf, and the dwarf sugar pea particularly in very lean soil, and at a good distance, row from row, and pea from pea; for when this sort is sown upon fat land, or thick together, a vermin particularly fond of this sort of pea will destroy them, before they can perfect their crops. The sugar pease have no inner film in their pods, as all other pease have, and are remarkable for a singularity in their growth.

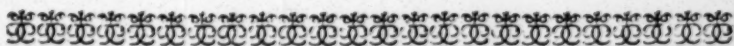


### Beans.

THE Mazagan and the early *Lisbon*, are the earliest kinds; but I prefer the Mazagan bean, because it is a very great bearer, and has a fine taste. It is a native of a *Portuguese* settlement upon the coast of *Africa*, and in mild winters and springs comes first; it is best to have them annually from *Lisbon*, for they degenerate, if sown in *England* from seeds raised in *England*. These may be sown in *October* and *November*; and when they appear above ground, it will be proper to cover them up with earth, to preserve them from frosts, earthing them as they advance, until the frosts are over; then fasten them to the walls near which they are sown, with

with reeds and lists of cloth drove into the walls with nails, which hastens them on, and will prevent them from wind-waving or breaking; and topping them when in blossom, they will come very early. There is another method to have those beans early: Lay a pound of them under the earth near a well exposed wall; cover them with bell-glasses; in three weeks take them up and you will perceive them springing, which when you observe, plant them out on south-aspected walls, and allow their buds to be equal with the surface of the ground, for frost will not injure them, but be sure to cover their roots well.

Next to these, you may in *February* sow the *Spanish*, green *Genoa*, and the *Sandwich* beans; and after these, once every three weeks, sow the *Toaker* or *Tockay*, the *Turkey*, the *Windsor*, and *Nonpareil* beans, from *March* until the middle of *June*, in order to have a succession of them as late in the season as you can; you may plant them among your rows of cabbages, or in fields by themselves, giving them four feet, row from row, and six inches to the largest, bean from bean; I always planted two beans together in holes two or three inches deep, and observed to top all the kinds when they were in full bloom, as I found such pruning to help their fruit to set more plentifully, than if their long stalks were allowed to ramble at large. The green *Genoa* bean I allowed to be quite ripe before I gathered it, because I preserved it for winter-use; and after pulling them, I dried them. In winter, steep them for some days to soften, and boil them with bacon and fowl; they not only retain their colour, but eat as well as in summer.



#### *Kidney Beans.*

I Have already treated of raising Kidney Beans upon hot-beds, so shall not repeat it here: The best kinds of kidney-bean for a good crop, is the *Battersea*, the

Dwarfs being only for hot-bed use to have them early. There are some gardeners who advise the planting the *Battersea* sort upon a moderate hot-bed, and after they have germinated, by showing their root springing at the eyes of the bean, immediately to transplant them into the open ground for good, whereby (say they) you will have fruit earlier by a fortnight, than if they were sown in the natural earth. This may happen in mild springs; but this plant being very tender, I have often observed their roots decay, when they have been thus transplanted. The method I used to have them early was thus; I took some of my largest pots, and laying a large stratum of good fresh rich earth at the bottom of the pots, I therein planted a few beans; I covered them again with a good stratum of the same earth, and planted therein some more beans, and continued so to do until I had filled my pots (which I set in the airiest place of my green-house) with earth and beans; in fifteen days after, my beans were fast springing; which when I observed, I took them and planted them two inches deep upon a wall-border, in the same sort of soil, by which means I had my bean crops earlier by three weeks, than those which were sown at the same time upon the open ground, and had by far more success, than with those beans whose roots chipped (as the gardeners say) upon hot-beds. They require to be kept quite clear from weeds, and in very dry weather you may give moderate waterings, and by sowing once every three weeks, you may continue them till the frosts pinch them and render them useless. You may in *May* sow some of the early dwarf *Canterbury* kidneys, which do well at this season.

*Hot-beds.*

*Hot-Beds.*

**I** Propose now to give some directions for making up *Hot-beds* of horse-dung, for those crops in the kitchen-garden which require to be early, especially cucumbers and melons, the raising of which, when the heat of the sun is declining, or when it has but small influence, makes it necessary to assist nature in our climate of *Britain*.

Take a good quantity of new made horse-dung from the stables, wherein there must be a good quantity of litter, or the bedding of the horses mixed with it; lay this dung in a heap for seven days to sweat, that the rank fume of it may pass off; if you observe, that the dung and litter are not equally mixed, turn it over again, and mix it as equally as you can, and let it lye four days longer, by which turning and mixing, it will acquire a due heat, which when you observe, make a trench in the place where you are to set down your hot-bed, one foot and a half deep, if the situation is dry, and in length and breadth corresponding to your frame which you put upon it, observing that there be six inches of dung more in length and breadth than your frame is; then wheel the dung into the trench, stirring every part of it with a fork, giving a gentle treading with your feet, in such manner, as it may be perfectly even thro' every part of the bed; it must be three feet thick of this dung, above which lay four inches of pure dung, without any mixture of litter, the use of which is to prevent the steam from rising so much as it often does; set your frame upon it for five or six days, before you put on the earth, that the violent heat of the dung may pass off, which would burn the earth and make it good for nothing.

About five days after put on the earth six inches deep, and when it is warm sow your seeds in it; for the management of which I have already given sufficient directions. Three weeks after you must prepare dung for a nursery-bed, in the same manner, using  
your

your dung as in the former bed with this difference, that when you turn the dung the second time, I would mix with it some small coal-ashes, which will preserve the heat in the bed for a longer time, than if you did not use any; take care now to lay and tread your dung equally, otherwise the dung will heat unequally, or in spots of the bed here and there, and it will be sooner spent, which is a great misfortune: When your heat is failing, add some new dung quite round the edges of your beds, which will renew the heat, and preserve it a considerable time; but observe always, as the heat of your beds decrease, to increase at night the coverings upon your frames and glasses.

When your plants are fit to be planted out into ridges, prepare and dress your dung, and mix it in the same manner with coal-ashes, as is directed for the nursery-beds; but at this season, if the ground is dry, I would dig the trench two feet deep, and lay above that, when it is filled up, two feet more of dung, managing them in the same manner as to setting on the frames, and putting on the earth, which for cucumbers must be twelve or sixteen inches, and for melons eighteen inches deep; if your ridges decline in their heat, add new dung round the edges of the same, covering them all with it, to allow their roots space and good earth to run into, which is of greater service to the plants on the ridges than most of our gardeners apprehend.

There are, or may be some of my readers, who will do doubt condemn me for this immoderate use of dung in the kitchen-garden, and what belongs to it, which they say cannot be given with such profusion, or they must take it from their farming business, which is much more profitable than any garden is.

I am glad the hint was given me, that I may have an opportunity to make myself understood by these farmers, and to be reconciled to their system of even being a very good manager of this dung, and improving it, and rendering it fitter for their purpose than it  
is

is lying idly in the dunghill for six months to no purpose at all.

I propose the having an inclosure near the dunghill, wherein are hot-beds for producing early crops. That the dung, by being made up into hot-beds, any farmer of judgment will admit, is thereby better rotted, and fitter for his purpose of laying it upon land, than if it was to lye idly in the dunghill, where it neither could be so well rotted, nor its salts be rendered so fit for vegetation, but might all evaporate from it, by being uncovered. This I will affirm, that one load of this well rotted dung is better than four loads of unrotted dung at any time, for any farming business. Now, I would not desire any of this dung to be laid within this inclosure, or to the pailed walls thereof, to be employed in any part of the kitchen-garden; because this dung comes from the stables where the cattle feed upon hay, and no such dung should be used in a kitchen-garden, because, as it is full of grass seeds, it is a great seminary for weeds of all kinds, and for that reason all dung which is used for hot-beds in a kitchen-garden, or for the common crop in it, should be such as is taken from the stables wherein the cattle feed upon straw only.

It is the dung which is used for the melon and cucumber beds in the kitchen-garden, and that only, which I would use for my kitchen-garden crops, because it is at hand, and that is not hay-dung, but straw-dung. To be very thrifty in the use of dung, when I give manure to that land whereon I intend to plant cabbages or collyflowers, as probably I will sow onions upon it the year after, I would not give it dung for onions, and just so would I use it, if I sowed onions for my first crop after dunging, and the year after I planted cabbages.

To encrease your dung, I must take notice of some things which make very good dung, and that is leaves of trees, which being mixed with the earth which you intend to dung, by laying stratum of the leaves and earth alternately in *October*, make a very rich and  
clean

clean compost for most kitchen-garden uses; and in the spring it will be fit for the ground.

Some persons take the garbage of their kitchen garden for this use: I own I do not approve of this method of making dung, until it is rotted for some years, nor of the cleaning of ponds, until it is also very well rotted for some years.

Thus I hope I have obviated any objection my readers may have in regard to my being too profuse of dung in my prescriptions for the kitchen garden.

I have seen cows dung made use of for ridging cucumbers and melons; and where it is in good temper, it keeps the heat as long, and sometimes longer than horses dung; and I would use most of my cows dung which I rot for my flower-garden in the ridging hot-bed manner; for here it rots much sooner and easier, than by turning and tossing it up and down, as I have described in the article of preparing this dung for composts to the *Oriental Hyacinths*.

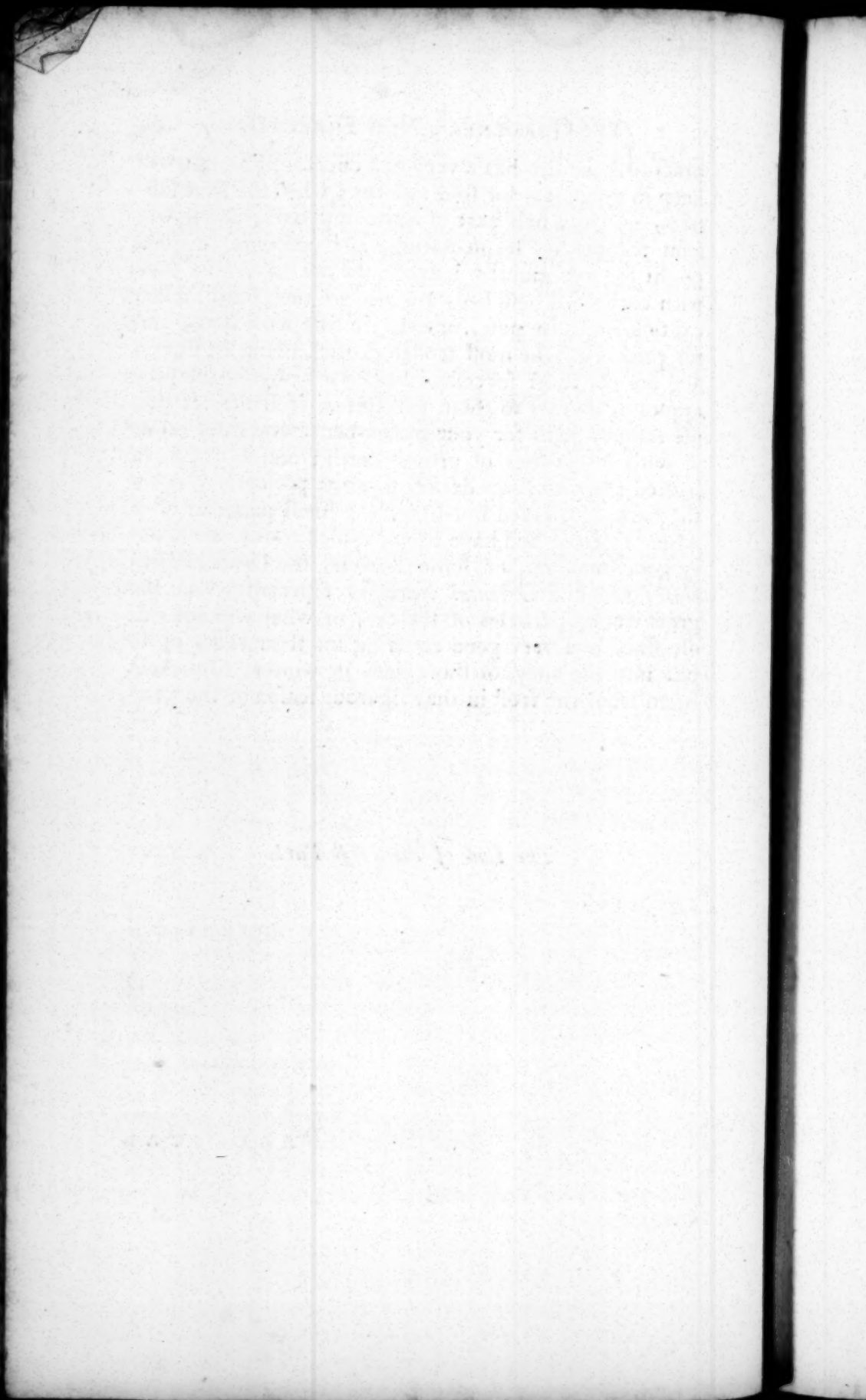
Besides these hot-beds of dung, there is within these few years found out another kind of hot-beds, which are made of *Tanners Bark*, and they are thus prepared: The pits or trenches to hold the bark should be three feet deep, and never less than twelve feet long, and six feet broad; they should be bricked upon all sides, and cause-wayed at bottom, to hinder the earth from falling down, and mixing with the bark; if they are shallower, narrower or shorter, there will not be a sufficient quantity of bark to keep heat sufficient for any time; if they are sixteen or twenty feet long, so much longer will they keep the heat. This bark may be taken from the tanners pits, and should be laid where it is to be put into the bed for one week, to drain off the superfluous moisture, which, if it is not drained off, the bark would not heat.

When you put it into your bed-pits, lay it in easily and even, but do not tread it down with your feet, as you do dung; for it would thereby cake, mould, and never heat; put no dung below it, which will make it heat too soon, (as is by some persons erroneously practised)

practised) for this has a very bad effect. The tan will keep in good heat for four months ; when the heat subsides, give it a half part of quite new bark, and it will soon recover its fermentation, and continue in good plight for five months longer ; do not cover the bark with earth. These beds are used to raise hard shelled exotick seeds in pots, or even in the bark itself, and for preserving the most tender exotick plants in stoves, and are the most successful beds for bringing the pine apples or *Ananas* to their perfection of fruit. If you use tanners bark for your melon-beds, you must cover it with ten inches of proper earth ; and in it I have fruited the *Canteleupe Melons* to great perfection. After the bark has served hot-beds, the finest particles of it when riddled, and have been exposed to rot, are a very good manure for some flowers, the *Oriental Hyacinths* and the *Oriental Narcissus* especially, and the gross woody particles of the tan, or what will not riddle fine, is a very good covering for their beds, or to put into the alleys of those beds in winter, to protect them from the frost in that rigorous season of the year.

*The End of the First Part.*

PRACTICAL



# PRACTICAL INSTRUCTIONS

## I N

# GARDENING.

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### PART SECOND.

*Christmas Rose, or Black Hellebore.*

**T**HE first flower which introduces the spring, is botanically named, *Helleborus niger flore al'o interdum rubente*, J. B. It blows in mild winters before *Christmas*, and is very pretty in the garden, when every other plant is deprived of flowers and beauty; it bears a rosaceous flower upon small stems, which arise about two inches or little more from the ground, and has a faint but very agreeable smell. This plant may be propagated by parting its roots in *August*, so as they may strike new roots before winter, planting some of them where they have the benefit of the winter's sun to make them expand their blossoms early; some of them may be planted in a more shady situation, in which they prosper best of any:— They require a fresh earth, but not dung'd; because when the earth is too rich, it is apt to rot them:---It is also propagated from seeds, which should be sown in shady borders (but not under the dropping of trees, that being very prejudicial to all young plants.) Whenever their seeds are ripe, which is in *June*, sow them; keep the seedlings clear from weeds, and the spring following they will come up. They may continue there  
until

until *March* following, when they should be transplanted into the nursery-bed, wherein they may remain until they flower, which should be taken care of and planted out in *June*, or in any of the summer months into borders or wilderness quarters, where they are to stand for good.

I take this opportunity to explain myself to my readers, which may be of use to them, and also to vindicate myself from whatever prejudices they may have, or affect to have against this performance, because of my being very particular in raising from seeds some flowers, such as the above, which are commonly thought to deserve little or no attention; as such attention cannot bring profit enough to compensate the labour of the raiser, and the care which is here prescribed to be taken of them.

To give therefore that satisfaction which every author should give to his unprejudiced readers, I must say, that since floristry became in fashion, or was reputed at home or abroad, novelties in this science were reputed and esteemed; and the florist, who was possessor of most novelties or curiosities, was most esteemed by the curious: For instance, he who raised the first double hyacinth, he who had the famous *Dutch* black tulip, or he who raises the best auriculas, in our days has great praise and merit.

It was for this reason, that I have in this treatise advised the sowing and continuing to sow the seeds of the *Christmas* rose, the winter aconite, the white hepatica, and some other flowers, that if by chance a double appears of any of these flowers which never yet appeared, such uncommon production will give suitable pleasure and profit towards the care and attention of the raiser; for if such flowers were raised, I can make no doubt of a florist's being rewarded by a sale.

This induced me to prescribe the methods here inserted for sowing every year the seeds of these common and low-priced flowers.

*Winter*

*Winter Aconite.*

THE *Christmas* rose is succeeded by the winter aconite, called botanically *Aconitum byemale*: It hath a yellow flower; its leaves which are of a vivid green colour are deeply cut, and from the centre of the leaves arise the flowers, which expand in *January*, even when frosts and snow are upon the ground, and are then of a more beautiful colour than in a milder season; the seeds of this plant are ripe the beginning of *April*, and so soon as you gather them, they ought to be sown in a rich light soil, in pots or in boxes exposed only to the morning sun. They will come up in *December* following, and after their leaves are decayed, it will be proper to lay two inches of the same mould upon these pots or boxes, which will strengthen the young roots, and in three years after sowing they will show their blossoms; observe not to transplant them from this seed-bed, until they are three years old; for neither the old roots nor the seedlings agree with being transplanted oftner than every three years: This work ought to be performed before their leaves are entirely faded; their roots, which are somewhat shaped like an *Anemone*, but smaller, being of a dark earthy colour, and of consequence troublesome to find, after their leaves are quite faded.

They make a very pretty show when they are planted in clumps, in long borders; intermixed with double and single snow-drops, hepaticas, donfoly, the *Persian* iris, and vernal colchicums, of which I shall treat under their respective names.

O

*Snow-drops.*

*Snow-Drops.*

THE next flower that adorns the spring is, the snow-drop, of which there are four kinds; the single or lesser bulbous rooted is by *Tournefort* botanically named *Narcisso-Leucoium minus*. It has a bright white flower, which ariseth betwixt its two plant leaves, and blows in *January*, even when there is frost and snow upon the ground. This plant is easy propagated by off-sets, which increase much, provided it is not transplanted but once in three years, for you cannot expect many off-sets, if it is sooner moved; and therefore is a very fit companion for the winter aconite; of both which I had a long bed planted in rows alternately, which made a very fine show.---This flower does not require a very rich soil, but fresh ground should be laid upon their beds about *Michaelmas*, before the frosts set in, which will greatly strengthen their roots for blowing fair the succeeding spring.

The properest season to transplant them is about the end of *June*, or beginning of *July*, when their leaves are decayed; then they may be laid up in their respective apartments in the root-room to dry, observing to clean their bulbs from earth, and any rottenness which may be about them, and to keep them dry, until the beginning of *September*, when they should be planted two inches deep, and two inches asunder only; for as it is a small flower, the thicker they are planted, the greater show they make.

There is another kind of this flower, which is named botanically *Narcisso-Leucoium trifolium majus, luteis apicibus*, or great snow-drop; this is named in the *Dutch* catalogues, *Donsfoly primalum*. It is larger than the former sort, and has a high musky flavour, with some yellow tips or spots upon the extremities of some of its petals; this sort is not so common as the other, but requires the same culture, but you are not to expect that it increases so fast; it flowers about the beginning of *March*; but I have not hitherto observed it

it to seed so freely as the other kinds of this flower.

About the time that the former sort is in flower, another kind called the double snow-drop expands its blossoms; it is named botanically, *Narcisso-Leucoium flore pleno minus*, Boerb. index.---This sort continues long in bloom, and makes a very pretty appearance with its double blossoms, the inner petals whereof are first of a green colour, tipped with white, and are afterwards of a bright white, as the flower advances: It has not so good a flavour as that sort called in the *Dutch* catalogues the *Donfoly*, because in all double flowers the multiplicity of the petals or leaves of the flower, obstruct the organs of generation, in which the essence of the flower lies. They do not increase so fast as the single sort, but in all respects require the same culture.

The last kind of snow-drop, is called greatest snow-drop, and botanically, *Narcisso-Leucoium altissimum, flore albo parvo, apicibus viridibus*, Boerb. index. This flower I mention here, because it is of the same class, tho' it does not flower till the month of *May*. It is a hardy plant, and its bulb is as large as a polyanthus narcissus; its seed-vessels contain a round seed, which, when ripe, is of a clear shining black colour, as big as the seeds of hyacinths, and seems to promise, with proper care and industry, an agreeable variety of flowers, tho' hitherto I have not heard of any improvement of that kind. The number of its flowers upon one stalk never exceed three or four. They show well in borders, when planted amongst other flowers of their time of blowing, which is in *May*, because of their fine strong stem, and fine green leaves. Their culture being the same as directed for the smaller kind of snow-drop, I need not repeat it here.

*Hepatica's.*

THE kinds of which are, *two*, the single white hepatica, called botanically, *Hepatica trifoliata, flore albo simplici, Boerb. index.*

This kind seeds very freely, and no doubt from its seeds was raised the double white flowered *Hepatica* mentioned by Mr. Ray in his *Flora*, as a very fine flower. Of this double flower we now have not any, but as what has been, may be, I would advise a continuance of sowing the seed of this flower by which not only this, but a great variety may be acquired. I would sow them in boxes the beginning of *August*, in light fresh earth, exposing them only to the morning sun. In *November* following, bring the boxes into a situation, where they can enjoy the whole day's sun, and therein allow them to remain until the beginning of *March*, when I would replace them in their old situation. During the winter, in the evenings and in great frosts, cover the boxes with matts, not so much from an apprehension that the frost would harm them, but at that season, when their seeds are germinating, it might stop their vegetation. It is a very hardy flower, and the young seedlings will begin to appear in *March*, at which time they ought carefully to be kept clear from weeds, and refreshed with water in dry hot weather. In this seed-bed they should remain for two years, and after their leaves are gone, they should have some light virgin earth laid over them, which will greatly strengthen their roots. In the winter remove the boxes, in the same manner you did that winter after they were sown, and proceed with them the following spring, as you did the preceding year. By the middle of *June*, they will be fit to transplant into beds of light fresh mould (not much dunged) having arched the beds over with hoops, to shade the plants from the sun, until you perceive they have taken root; keep them clear from weeds, plant the seedlings four inches asunder every way, putting the earth close to them as you plant them; and

and in *November* throw up the alleys of the beds two inches above the surface of the earth wherein they were at first planted, which strengthens them, and at the same time prevents the frost or worms from throwing their young roots out of the ground; the succeeding spring some of these seedlings will show flowers which, if fine in their colours, should be marked; and set apart for the garden. Keeping them clear from weeds, and throwing the before prescribed cover of earth upon them in *November*, is all the culture they require until *March*, when you should with your hands break and make fine the mould on the surface of the beds, in order to give them a fair appearance: The plants in this fourth year will show their vigour in blossom; and it is then that their double flowers will appear, if there is any such among them.

The hepatica does not agree to be transplanted oftner than once in three or four years, and, if allowed to continue six years, will make very pretty clumps of flowers together; whereas if they are often transplanted, the roots will be weak, and are apt to rot.

The second sort is the single blue, or *Hepatica trifoliata, flore cœruleo, Clus.*

The third sort is the single red *Hepatica*, botanically called, *Hepatica trifoliata, flore rubro, Clus.*

The fourth sort is the double red, or rather peach-coloured *Hepatica*, botanically called, *Hepatica trifoliata, flore rubro pleno, Boerb. ind.*

And the fifth sort is the double blue *Hepatica*, botanically called, *Hepatica trifoliata, flore cœruleo pleno, Clus.*

They all require the same culture, which is fresh mould, and ought not to be transplanted but once in three years, unless by their vigour they turn too large; and in that case they may be parted from the mother roots in *March*, shading the new-planted off-sets, and refreshing them with water often, until they have struck fresh roots: By this means they will make a fine show in the spring, and often in the end of autumn for many years.

*Primrose.*

THE next flower I chuse to treat of, is the *Primrose*. Of this there are two sorts; first the *Primrose*, botanically called, *Primula veris*, which has but one flower on a small slender stalk, unable often to support itself; the other the *Polyanthos Primrose*, which bears many flowers upon one large erect stalk; it is called, *Primula veris Polyanthos*, because of its having many flowers upon one stalk. The varieties which are obtained every year by the florists, who save and sow these seeds, are very great, and some incomparable beauties happen often to reward the trouble of sowing and cultivating them. As in this article I have had great success, I shall here give my own method of sowing, and managing these plants from the sowing, until they flowered.---I gathered these seeds from the most vigorous plants, and such as had the strongest, prettiest, and greatest number of flowers upon one stalk, observing in dry weather to give good quantities of water to such plants as have seeds on them, from the time that the flowers fade, until they are quite ripe, which is generally about the 25th of *June*. It is easy to know when their seeds are ripe, by the vessels in which they are contained turning brown, and opening or bursting, and the seeds appearing to fall out of the husks which contain them; for which reason you should look over your plants at least once a day, that you may lose as little of their seeds as possible.

So soon as they are ripe, lay them in small paper bags, with their husks, or rather the seeds in their husks, without opening their husks; because if you were to throw the husks away, it is possible some seeds may remain in them, and so would lose them; provide yourself with boxes, long and wide, as you see proper, and eight inches deep in the clear; then fill your boxes with fine mould, composed in the following manner: To one load of well-rotted cows dung, or leaves of trees, take half a load of fine white sand, and two loads  
of

of fine hazely loam taken from a pasture some months before, and which has had the grass sward or upper part thereof rotted amongst the earth; mix all well together, and fill your boxes with this compost to the brim, or very near it; then shake the boxes, to make the earth settle, observing to make the surface as horizontal as possible; and before you sow, let the earth be in the boxes fourteen days to settle. If it should rain, before you sow the seeds, (which should be done immediately after they are dry, or in about ten days after they are ripe and gathered) let the surface of the boxes have a pretty hearty shower; but if there is no rain, take your watering-pot with the finest rose, and water the surface of your boxes, and immediately after sow your seeds, as equally as possible, and not too thick, that being a great error, as well as covering them with too much earth, a quarter of an inch of earth above the seeds being sufficient; and I would chuse it to be of the surface of the earth where the plants grew, from which you gathered your seeds, in case that any of the seeds have shaken from the plants when ripe, by wind or any other accident, which would be lost, should they remain upon the surface of the ground amongst the old plants; lay this earth on gently with your hands. The most proper situation for these boxes in summer, and even when the plants are very young, is under a wall or hedge which looks to the north or to the east; for the rays of the sun are very prejudicial to these plants when they are young; and in dry weather, it will be proper to refresh the surface of the boxes with gentle and frequent waterings. There are some who sow these seeds in *January*, in open or mild weather, or about the first week in *February* at farthest.

In *July*, prepare a nursery-bed of the same earth in which they were sown, and plant them carefully out, taking up as much earth about their roots as you can, so as not to disturb their young fibres, planting them twelve inches asunder, and shading them from all sun until they have struck new roots; keep them clear from weeds, and give them gentle waterings, and let

this nursery-bed be made in such a situation as to have the morning sun only. Some of them will shew their flowers the same Autumn, and many of them in Spring following, when all the good flowers should be planted out in beds by themselves, as they make the best show when they are in those beds, in a moist shady situation, where their pretty varieties will much delight the curious eye: But I would not choose to do this work until they were a year in the nursery-bed, and was quite certain of their beauties, and of their faults, whereby I could distinguish exactly the good from the bad. About the beginning of *November*, when the plants are in this nursery-bed, and in a dry day, take a quantity of the compost earth in which they were sown, and with your hand lay it an inch thick all over this nursery-bed; lay it also amongst the plants, holding their undermost leaves with one hand, when with the other hand, you lay in the earth, so as the leaves of the polyanthos's may lie above the earth, and press this earth down about the roots of the plants, observing to clear the bed from weeds, and foggy stuff which lie upon its surface: This cover will strengthen your plants much for shewing well the succeeding Spring; and even if they should happen to flower in Winter, which is often the case, will preserve them from the injuries of that season. They require to be transplanted every two years.

The double primroses, such as the double paper white, the double red, and the double yellow, are pretty ornaments to a garden, especially where there are quantities of them; they are easily increased by parting their roots in *March*, and planting them in a shady and moist situation, in which they will prosper well.

*Spring*

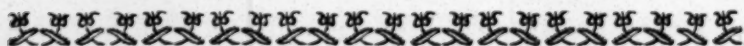
*Spring Crocus, or Crocus Vernus.*

**I**S so called to distinguish it from the Autumnal crocus, and is a great beauty in the Spring, and of which there are great varieties, the best sorts of which are to be had in *Holland* from Mynheers *Vaerbelms* and *Van Kampen* at *Haerlem*, where you can buy 100 roots, and 12 different sorts, for one guilder.

Having provided yourself with those roots, and in case you have many of them, I would plant them in these two different ways; the first as edgings to long borders, in which clumps of annual, or some perennial flowers are ornamentally planted; taking a dibble and making a hole two inches deep, put in the root, and into each hole I should advise you to put a little dry foot, to prevent the mice falling upon their roots, of which they are very fond; plant their roots two inches from each other, and instead of one row, plant two rows; for the more flower-roots are together, the more flowers, and the greater show you will have, observing to plant those which flower the soonest, together by themselves, and so progressively with the others.

The second method of planting them is in beds, each colour by itself, planting the earliest always by themselves, two inches deep, and (when they are in beds) three inches asunder, for they will increase fast enough to fill up all their spaces or distances at which they are first planted, either by their off-sets, or by their seeds, which if you do not gather, will drop out of their seed-vessels and sow themselves, and by covering them with one inch of earth when you observe the seeds to be shaking, will grow very well, and flower the third or fourth year after sowing. I would advise you not to remove your Crocus's sooner than once in four years; but when their leaves are withered, every year cover them with two inches of new fresh mould, which will strengthen their roots, and make the new shaken seeds germinate soon. Their seeds may also be sown regularly in the same manner

as shall be directed for the *Bulbous Iris*: But there being now abundance of their varieties raised, and their prices so low, it is scarce worth a florist's trouble or pains to sow them in any other method than that which I have here prescribed. You must observe to cover their seeds immediately after they are shaken, otherwise they will not thrive, it being certain that crocus seeds should be sown immediately after they are ripe, and consequently ought to be covered with earth so soon as they are shaken, in those beds where the mother roots have flowered.



*Persian Iris.*

**B**OTANICALLY named, *Xiphion, Persicum præcox, flore elegantissime variegato, Tournef.* This flower is justly termed one of the most splendid beauties of the Spring. I never sowed the seeds of it, so can say nothing of their culture that way, and possibly there may be varieties obtained from it; but when I was in *Holland* and *Flanders*, the florists there told me, they never had obtained any varieties from sowing the seeds of it, excepting the deceased *Jan van Leuwen* at *Rotterdam*, who told me, that one of his seedlings had produced him a flower, whose ground of colour, and the erect petals were of a fine blue, and that the tips or upmost parts of its petals were spotted in the same elegant manner as the common sort is. I planted them always in a light soil in clumps, with other vernal flowers, where they blossomed very well; but I observed in some neighbouring gardens, and sometimes with myself, if they put out many off-sets, the mother roots and off-sets shewed leaves, but no flowers. As it is a root which off-sets freely, and will not succeed, if it is often transplanted, or kept any time out of the ground, I used the following method by which it flowered constantly: Whenever the leaves of the plant were near decayed, if it had off-sets, I removed the

the earth from the bulb until I was below it, and observed its fibres; then with my fingers I took off the off-sets, which by that time were formed into bulbs, and taking them up carefully, put in new, fresh, rich mould, about the mother bulbs, putting up the earth without disturbing the mother roots. I took the off-sets and planted them, either into a place by themselves, or in clumps, with other vernal flowers in the same rich sandy soil, observing strictly to take none of their fibres from them, which they retain, even after their flowers and plant leaves are faded: I planted them three inches deep in the ground, opening the same as deep as those permanent fibres were long, and they flowered every year extremely well. If you are to make a nursery of them in any piece of ground, and to plant the off-sets or roots immediately, let the ground be wrought two feet deep into a soft mould, that their long fibres may have plenty of ground, and may not be cramped upon clay, or other stiff soil, into which they cannot penetrate, which will make them stunt, not flower, and at last decay entirely. I have had also blows of them in pots to adorn chambers early in the Spring, but always observed afterwards to take them out with the whole earth in a clump, which was in the pot, and planted them in the open ground, and this work is best done in *June*; plant them and the earth which was in the pot altogether, without disturbing their roots in any manner whatever. So soon as you receive these roots from your florist, plant them, for if they lie any time out of ground, they will never prosper, and will be in great danger of rotting altogether.



*Daffodills, or Pseudo-Narcissus.*

THE first of the daffodills which blows in the Spring is the dwarf Narcissus with a large head, called *Narcissus nanus, seu Pumilus maximi capitis*; thus

thus it is named in the *Voerbelms* catalogues in *Holland*: This kind does well to be planted in clumps of vernal flowers, with snow-drops, and others; it thrives well in a rich light earth, but should not be lifted but once in two or three years; it has a yellow flower, a very short stalk, and a very large trumpet-like cup, fringed about the edges.

There is another sort of them which has as high a stalk as the other daffodills, and a large trumpet-like cup, and is fringed about the edges, which in the *Dutch* catalogues goes under the name of *Narcissus trompet major*; this requires the same culture with the former, and should be planted in clumps of vernal flowers; this is botanically named *Narcissus major totus luteus, calice amplo prælongo, C. B. P.*

There are a great many other varieties of daffodils, which persons, who are inclined to have great variety of this flower may buy: But when I treat of a genus of flowers or plants, which have many species, I treat of no others, but of those, whose culture I know by my own practice: Wherefore, it is not to be expected from me, that I am to describe all the sorts of those flowers or plants, which are found in authors, who have favoured the world with learned botanical descriptions of most plants. But to proceed,

There are four sorts of daffodills which I shall here describe, which are to be bought in quantities from the *Voerbelms* and *Van Kampen* at *Haerlem*, which make pretty edgings for borders on each side of a walk, and do very well when planted in edgings immediately opposite to one another, and in the inside of an edging of crocus's: So that, for example, if you have 100 roots of any one of the kinds, I would plant 50 in one border edge-ways, and 50 in the other border quite opposite, that the eye may be entertained with a shew of flowers of the same kind, all blowing at the same season: And the best sorts of daffodills for such a show, are, *imo, Narcissus van Sion*; this sort is often mixed with some of *John Tradescant's* daffodills put amongst them: this last is botanically called *Narcissus latifolius flore*

*flore plenissimo, petalis partim flavis, partim viridibus interpolatis*; and the first is botanically called *Narcissus multiplex, totus flavus*. Those in the *Dutch* catalogues are mixed together, and I choose first to give them their *Dutch* names, because from the Mynheers *Voerbelms* at *Haerlem*, I have always got the largest quantities, and the best roots of them.

2do, *Narcissus incomparabilis*, incomparable daffodill, is botanically called *Narcissus incomparabilis, flore pleno, partim flavo, partim croceo, Hort. Reg. Parisien.*

3tio, *Narcissus Orange Phœnix*, is botanically called *Narcissus latifolius, flore plenissimo, petalis majoribus pallidis, minoribus colore aurantii interpolatis.*

And 4to, *The double white Narcissus*, botanically called *Narcissus albus, flore multiplici odoratissimo*, which should be placed in the edgings of borders, where flowers which blossom in *May* are planted.

All those *Narcissus*'s or daffodills, (but which should more properly be called *Pseudo-Narcissi*) should be planted as I have mentioned before, in edgings, within edgings of crocus's, six inches from them, and six inches asunder, in *September*, and four inches deep, with a dibble made broad, half a foot long: Before you plant the roots, have a wheel-barrow full of rich and very sandy mould, filling the pit, into which you are to plant the bulb two inches with this composed mould, that the tender fibres of the bulbs may shoot the more easily into this soft earth, and may thereby acquire strength to penetrate further down into the mould below, which is not of so fine a consistence; fill up the pit two inches above the bulb, and riddle or lay over all, two inches more of good garden mould: Their leaves and flower-buds will appear early in the Spring, and, except keeping them clear from weeds, will need no further culture or trouble until *November* following, when I would advise another coat of good garden mould to be laid upon them, and in the Spring to dress the beds and clear them from weeds with your hands, which is safer for their springing buds of leaves and flowers, than any hoe or instrument whatever.

Of

Of the rest of the daffodills, or Pseudo-Narcissus's, the best kinds are :

1<sup>mo</sup>, The non-such daffodills, with double flowers, and whose big leaves are white, but the lesser leaves are of a gold colour, botanically called *Narcissus latifolius*, *flore plenissimo odorato, petalis majoribus, candidis minoribus aureis interpolatis*, Boerb. Ind. et Hort. Eyst.

2<sup>do</sup>, Peerless primrose daffodill, called botanically *Narcissus medio-luteus vulgaris*.

3<sup>tio</sup>, Yellow daffodill, with the petals of its flowers reflected, botanically called *Narcissus luteus petalis florum valdè reflexis*, Casp. Baub. P.

4<sup>to</sup>, The greatest nonpareille daffodill, botanically called *Narcissus latifolius omnium maximus, amplo flavo calice*. Park. Par.

Those four sorts should be planted in clumps with other flowers, which blossom about the same season, viz. in March and April; and their culture being the same with the others before-mentioned, I need add nothing to what I formerly said of them, but this, that I would advise none of their kinds to be lifted sooner than once in three years.

As for the oriental Polyanthos Narcissus, I shall treat fully of them, when I describe those flowers which blow after the hyacinths, that being a more proper opportunity.

The next flower which requires our notice, is, the Vernal or Spring Cyclamen, or Sow-bread.



Cyclamen, or Sow-bread.

THERE are two kinds of this flower, the one with the white flower called botanically *Cyclamen vernum flore albo*, C. B. and the other which carries a small red flower, called botanically *Cyclamen vernum minus, folio orbiculato infernè rubente, flore minore ruberrimo*, Moris. hist. These flowers are tenderer than  
he

the Autumnal sorts ; and if they are not planted in pots in Winter, or when they are in flower early in the Spring, they should have some covering over them in very severe weather, a bell glass, or some such protection. They do very well to be planted in clumps of vernal flowers, and should not be removed but once in two years ; and when their leaves are faded, and their seeds are perfected, is the best season to lift them ; and I have often cut large roots from off their eyes, but kept them out of the ground for some small time until the wound was dry and sound. I planted the root, as also that part which I cut off, three inches below the surface of the ground, and surrounding their bulbs with dry sand, they flowered and prospered well.

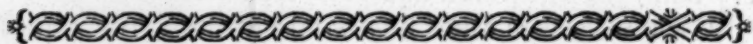
The two *Persian* kinds flower also in the Spring ; but as they require both to be housed in Winter, I shall treat of them among the Green-house plants, or under the article of the *Guernsey* lilies. Their seeds must be sown in boxes so soon as they are ripe, filled with rich sandy mould, and require the same culture of the *Bulbous Iris*, only they must be sheltered in Winter under a hot-bed frame, or in the front of the green-house, where they may have much air, but no frosts ; and in six years after their sowing, their roots will shew all their beauties in blossom, observing to shift them every two years into fresh mould, and bigger boxes, as their roots grow large.

I always chuse to sow most of the seeds of bulbs or of perennial plants, which require to be protected in Winter from the inclemency of that season, in boxes rather than in pots, because a pot has a greater cold, and more damps in it than boxes, provided you fix feet to all your boxes of six inches height above the surface of the ground, as I have already observed.

*Vernal*

*Vernal Colchicum.*

IN company with the Cyclamens may be planted in clumps the *Vernal Colchicums*, of which there is but one sort, botanically called *Colchicum vernum Hispanicum*, flore rubro, C. B. which makes a very handsome appearance with its purplish flowers; for the increase of their roots, remove them not oftener than once in three years; but it will be very proper to lay new earth over them every *November*, before the frosts set in, which will increase their roots, and make them blossom well the Spring ensuing.

*Dens canis and Fritillaries.*

THE Dog's Tooth Violet, or *Dens canis* and *Fritillaries*, are to be next treated of. Of *Dens canis* there are three sorts, viz. the white flowered with the broad leaf, is most common in *Britain*; its leaves make a very pretty shew in the Spring, and are by far preferable to others of these sorts of flower, whose colours are neither strong nor florid, so as to attract the eye,—their leaves creeping and covering the ground. I would propose the method I followed myself, of planting them: In a bed I planted two rows of them, and betwixt each row, one row of the different sorts of the *Fritillaries*, which are contained in Mynheers *Voorbelms* catalogues at *Haerlem* in *Holland*, for this reason, that the ground in such a bed may be equally employed, and may appear beautiful at the same time; for the *Fritillaries* flowering much about the same season with the *dens canis*, the former is naked in its stalk, and carries no leaves near the ground, whilst the low leaves of the *dens canis* adorn and embellish the surface of the beds, and the flowers of the variety of *fritillaries* seem to proceed from the beautiful variegated leaves of the *dens canis*.

Besides,

Besides, both the *fritillaries* and the *dens canis* prosper best, when they are removed no oftner than once in two years; observing to give such beds a covering of fresh mould, either from a pasture-ground, or from the alleys of the beds, every year about the beginning of *November*; and also observing to keep them clear from weeds; and in the Spring to go over the surfaces of such beds with your hands, which does better than any hoe, as that is apt to break the young springing buds of those flowers. The best season for lifting both those sorts of flower-roots out of the ground, is immediately after their leaves are quite decayed, and their seeds are ripened, which is commonly about the beginning of *July*, when you may replant them again in the same manner as formerly, into beds of good light undunged earth, separating their off-sets, and planting them and the mother roots single, about the beginning of *August*, neither sorts agreeing to be kept long out of the ground; the *dens canis* at two inches distance, and the *fritillaries* at four inches distance, root from root. I never sowed the seeds of the *dens canis*, but I sowed the seeds of the finest sorts of the *fritillaries*. My method was thus, and by which I raised three or four fine coloured ones, which had not before appeared amongst the sorts I had from *Holland*, and I had two roots of all the kinds in *Voerhelms* catalogues.

A fortnight after the seeds of the *fritillaries* are ripe, I prepared boxes of two feet in breadth, and three and an half in length, which after making holes in their bottoms, and covering the same with oyster-shells, to allow the water to pass off, I filled with the following compost, *viz.* one third of the oldest and most rotten tan-bark I could find, one third of the purest white sand, and one third of a good pasture-soil, which had lain by me twelve months, with its upper sward amongst it to sweeten and rot; these I tossed up in a heap in the above-mentioned proportions, after screening them, but not too fine, then put it into those boxes which were ten inches deep, but no higher than six inches, to allow the covers in very bad weather to lie

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over

over them, without incumbering the leaves of the young plants.

These plants came up in *March* after they were sown, and I had a fine appearance, few seeds, if any at all, having missed; in *Winter* I placed them in a situation where they had the full sun, but removed them in the middle of *March* following, into a situation, where they had the rays of the sun until eleven forenoon only. During the inclemency of the *Winter*-season, I placed them under a south wall, and in frosty evenings I covered them with wooden covers; and in the extreme season of the year, I put some of the oldest and best rotten tan-bark two inches deep, on the surface of the boxes, and removed it with the hand the end of *February*. After their being brought into a more shady situation, I dressed the mould in the boxes, and cleared it of a mossy topping it had acquired during the *Winter*, and laid thereon half an inch of good kitchen-garden mould, in which was no sand, for fear of making it too fine, whereby in watering the surface of the boxes, even with the finest rose that can be put to a watering-pot, the upper mould might have been washed off by the force of such waterings from the young roots, (which caution is to be used in all those boxes, where there are young seedlings of flowers, or other plants, which are but thinly covered with earth) the seedlings came very handsomely up, and in *June* their leaves decayed, during which time, and until the middle of *August* following, I gave them little or no water, but put on the seedling-box a good covering of the compounded earth in which they were sown, and the *Winter* and *Spring* following I used these roots and the earth in the boxes, in the very same manner I had done in the former year, until *June* when their leaves faded; at which season I lifted their roots out of the boxes, and found them as large as hazel-nuts, and quite sound, and of a fine size for their age, in proportion to their mother roots; all of which, notwithstanding their having seeded with me, blossomed as strong the second year of their growth, as they did the first

first year after I received them from *Holland*; but all those roots, which perfected their seeds, I shifted, after their seeds were ripe, into quite new beds of new compost, as was above described and directed for them.

To return to the culture of the seedlings: Having taken them out of the boxes, and laid their roots into a proper box in the root-room, and cleansed them, after they had dried for some days, I made up a bed of the same compost earth, into which I sowed them, with this difference, that I put only one half of the driest sand that I used when they were in the boxes, and in this bed I planted these roots two inches deep, and four inches asunder every way. In Winter I covered the bed with two inches of fine rotten tan, and by the end of *February* I removed it by the hand, and in *March* the plants shewed their leaves very well, and three of them produced flowers; one of which was of a large bell, and of an admirable snow-white colour, chequered with black; the other was of the kind they called *Monstrum* in the *Dutch* catalogues, and the other was quite of the colour of an apple-tree blossom. So soon as their leaves had almost decayed, I took scissars, and cut off the stalks, even a little below the surface of the earth, and that to strengthen the roots, and took off more than one inch of the old earth, and covered them with two inches of new earth, and in *November* covered them again with old tan as formerly, which in the beginning of *March* I removed after the frost had thawed; and in *April* I had such a blow of these seedlings, as was never seen in *Britain*, and I had seven sorts entirely new, which they had not in *Holland*, roots of which, two years after, I sent to my good friends the *Voerbhelms* at *Haerlem*, to amend their catalogues of this flower; and I am sure, this method is the only proper one for raising them from seeds, as also for cultivating their old roots which come from abroad; and were our gardeners in *England* and *Scotland* as diligent to obtain varieties, and possibly different sorts, from those raised in *Holland*, both upon account of the difference of soil and climate, which tend very much to

diversify plants, and especially flowers, it would be much for their profit; for it is but sowing every year, waiting with patience six years for the first blow; and ever afterwards, as long as you sow every year, you have the hopes of, and effectively are entertained annually with fine new varieties. In this method I would therefore advise every curious florist, to sow the seeds of those perennial bulbous rooted flowers every year, and if he has good seeds, and uses proper culture to his seedlings, he will in a few years be fully rewarded for his labour, by the varieties he will raise of them.



*Crown Imperial.*

OF this flower there are the following sorts, viz.  
Common Crown Imperial.

Greatest,  
Double flowered,  
Double crowned,  
Triple crowned,  
Flat stalked, or sword bladed,  
Silver strip'd leaved,  
Gold strip'd leaved,  
Single yellow flowered,  
Double yellow flowered,  
Yellow strip'd flowered,  
Branched flowered,  
Aurora coloured,  
Orange flowered,  
Bloody flowered,

Or, as the *Dutch* name it, *William Rex*. All those roots should be planted in a dry border of the garden, and are very valuable, because they are the earliest tall flower; too much wet will rot their roots, which I always choose to plant in the middle of the beds of the flower-garden in *September*, putting a good deal of dry sand into the pits which I made for them, and making the earth nearest to their bulbs as loose as possible, that

that their young fibres might go through this mould with ease. When they were rising to blossom, I placed by them small sticks, to which I fastened their long stalks, so that no wind should break them, nothing being more prejudicial to them, than to have their stalks broken, or their flowers cropt by any accident ; but as soon as you perceive their flowers decaying, and the seed-vessels forming, cut them off a little below their tops, allowing the other part of the stalk to wither ; I lifted them once only every third year, whereby I had great plenty of off-sets.

The *Dutch* florists have in their catalogues a plant, which they call *Lilium Persicum*, or the *Persian Lily* ; this flower blossoms in *April*, has a pendulous or hanging flower like a martagon, but is not reflected, and its colour resembles that of the double martagon ; this requires the same culture as the crown imperials, and blossoms much about the same time.



### *Oriental Hyacinth.*

**I** COME now to treat of one of the principal beauties of the Spring, the Oriental Hyacinth ; and as it is a peculiar favourite of mine, I shall accurately describe the most beautiful single and double flowers, which are in *Mynbeers Voerbelms* and *Van Zompel's* catalogues, which flowered with me ; and after proceed to the culture of their old roots, and their off-sets, and then give my own practice, whereby I raised many of these fine flowers of incomparable beauty, from seeds which I saved in this country ; and as there is such a variety of them, it will be necessary to be very exact in their descriptions, whereby one may know what is a fine flower, an early or a late blowing flower, with all its properties and colours, and I chuse to describe them from the catalogues of *Mynbeers Dirk* and *Pietre Voerbelms*, and *Voerbelm* and *Van Zompel*, florists at *Haerlem* in *Holland*, because I think the flowers of this kind I

had from them, excelled all others I had from other florists, either in *Holland* or in *Flanders*; and because I observed when I was in *Holland*, that of all other florists they took most pains and care of their roots, and kept the sorts most distinct in their several drawers in their root-rooms, whereby they seldom or never mistook one sort for another, which is too often the case with careless people.

I shall proceed to the description of the single white hyacinths, and I begin with the earliest blowers.

1st, *Premiere Noble* is an extreme pretty flower, with a high large stem, which is adorned with many bells of a white colour, but are somewhat pendulous, and are well reflected; this is an early blower, and seeds well; it blows also very well in Water-glasses.

2d, *La Tendresse* resembles the former flower very much as to the form of its stem and bells, whose pedicles are shorter and stronger, which keep the bells more erect; it is of a more shining white, and continues longer in the perfection of colour; it is an early blower, seeds well, blows well in water-glasses, and is a very fit companion for the former flower.

3d, *Koningclite Parel* is a very fine flower, of a good colour and a high stem, which is adorned with large bells, which are cornered prettily to the bottom of the cup; it holds its bells erect, which are very large, and has very often two of its bells joined into one at the top of its stem, for which it is much esteemed; it blows early.

4th, *Incomparable* is a flower of a charming colour, it has a high stem which is adorned with many bells, and are somewhat pendulous; it seeds well, blows early, and continues long in bloom.

5th, *Gekroonde Liefde* is a very pretty flower, high stemmed, surrounded with a good number of large bells, which are long, pendulous, and reflect well; it blows early, and seeds well.

6th, *Olypbant*, or *Elipbant*, is a large, fair, handsome flower, its stem is pretty high, adorned with large bells of a good white colour; and here and there  
upon

upon the tips of its petals, are spots of a faint carnation colour ; it seeds well, and blows early.

7th, *Phenomena* is a fine large flower, its stem is high, bears many bells of a dusky white colour, erect and well reflected ; it seeds well, and flowers among the second blowers.

8th, *Tuberosiana*, so called, I suppose, from the resemblance its colour and smell has to a tuberose ; this is one of the finest flowers yet raised, its stem is strong and prettily adorned with extremely large bells, which are erect to admiration, and so well expanded, as to touch the extreme petals of one another, and is of a shining white colour ; it seldom seeds, which I attribute to the great succulency of its large flowers. This root is not ready to off-set, and consequently is scarce ; it bears a great price at present, and because of its being so scarce, it has not appeared in the *Dutch* catalogues for some years past, and never did appear but in Mess. *Voerhelms* ; it is a second blower.

9th, *William Friso*. Before I proceed to the description of this flower, it is worth noticing, that when the *Dutch* give any name to a flower, which deserves observation, they call it by a name to which its appearance bears some resemblance, or by some great hero or learned man, possibly in botany, or some other science, either ancient or modern. So it is in this flower, the bells of which, upon a high bold stem, and at the tips or extremities of their petals, are very much fringed, are large and thick set, and are of a fine white ; it seeds very well, from which I have raised several fine double flowers ; it is amongst the second blowers.

10th, *La Reine de Femmes*, or Queen of Women, for its high and floriferous stem, the exquisitely pure shining white colour of its bells, which are very erect, long, and is charmingly reflected, one of the most attractive flowers to the eyes of the beholder yet known : Its stem, from three inches above the surface of the ground, being quite filled with its charming flowers, to the number often of thirty-four, and sometimes thirty-eight, to which magnitude I blowed it in my own garden

den. It seeds sometimes, continues a month in full bloom, when it is carefully attended, and is a late blower, preserving its admirable colours to the last. At its first appearing in *Holland*, it was sold for fifty guilders per root, which is a great price for a single hyacinth.

The next division of the single hyacinths, is called the single rose-coloured hyacinth.

1st, *Rose Princesse* is a vast pretty small flower; its stem is not high, neither are its bells large, but its rich carmyne colour is very engaging; besides, that it has this particular excellence, that the longer it blows, the better it comes to its colour, and retains this colour till it is quite faded; it seeds constantly and plentifully, so that I have had roots of it which have born good seeds two years successively; it is a second blower.

2d, *Bouquet Couleur de Chair*, or flesh-coloured posie, is a very handsome flower; it has a high stem, which is adorned with small bells of a fine flesh-colour; it seeds well, and is a second blower.

3d, *Rose Charmante* is a very pretty flower; its high stem is elegantly adorned with many bells of a rose-colour, and makes it deserve the name of a charming rose; it seeds well, and is a second blower.

4th, *Cleopatra* is a most handsome flower, with a high stem and very large bells, finely shaded with rose colours; it seeds well, and is a second blower.

5th, *Rosemonde* is an extreme pretty flower, with a high stem and large bells, elegantly mixed with white and coral colours; it seeds well, blows amongst the seconds, and has born a good price in the *Dutch* catalogues.—As does also,

6th, *Gekroone Rosencrans*, which is a very pretty large flower, with a high stem adorned with many large bells, of a bright mixture of red and white; it is a late blower, and seeds well.

7th, *Rose Pyramidale* is a pretty flower; its bells upon a high stem are ranged in form of a pyramid, and are of a fine blush colour; it seeds well, and is a late blower.

8th, *Hermaphrodite* is a pretty blush-coloured semi-double

double flower, from whence it takes its name of Hermaphrodite; the stem is not tall, nor are the bellsthick set, but they are pretty large, and are of a good colour, and seeds constantly, from which I have raised some very valuable double flowers; it is a late blower.

9th, *Rose Prieell*, or rose-cradle, is a high-stemmed flower, which carries small semi-double flowers, which, in mild seasons, bear good seeds; it is a late blower.

10th, *Aurora* is a small semi-double late flower; it seeds, and is of a good aurora colour.

11th, *Rose Naturelle* is a most elegant flower, of a fine rose colour, with a handsome stem and large bells; it is a second blower.

12th, *Soleil du Monde* is a charming new flower, of a very fiery colour; it is a late blower.

Having described the best sorts of single and semi-double white and rose-coloured hyacinths, which were under my care, I shall now proceed to the description of single and semi-double blue hyacinths, and shall begin with the dark-coloured blue hyacinths.

1st, *Avant Coureur*, or Forerunner, so named from its being the very next to the Brumal or Winter hyacinths, which blossom in *January*; it has a high stem, which bears flowers of a dark-blue on the outsides of the bells, the inner parts whereof are of lighter blue colours: it seeds sometimes in mild seasons, and blows very early, and may be known by this circumstance, that so soon as the plant's leaves begin to appear above the surface of the ground, at the tips of the upper parts of their leaves, they have a spot of reddish colour.

2d, *Neger*, or black; this is a small belled flower of a black colour; it seeds well, and is an early blower, and has a bold stem.

3d, *Koningclite Purpre*, or royal purple, is much such another flower as the former, but has its bells of a strong and dark purple colour; the stem and form of its bells are much the same as the Neger; it seeds often, and blows early, and is a very fit companion for the Neger to be planted together.

4th, *Koning Van Poolen*, or King of Poland, is a very pretty,

pretty, large belled, and high stemmed flower; it's flowers are not very thick set on the stem, nor are the petals much reflected, but it has peculiar spots of a lighter colour near the outside-end of its bells, which are very pretty; it seeds well, and is an early blower.

5th, *La Couronne Triumphante*, or triumphant crown, is a very fine flower, having a fine stem adorned with very large dark coloured blue bells, through which pass great stripes of a very dark colour; its bells are well reflected; it seeds well, and comes amongst the first of the second blowers.

6th, *Bashaw Van Cairo* is one of the prettiest single flowers that is to be seen; it has a large high stem thick set with many bells, which are well reflected; the inner parts whereof are of a light blue with dark stripes, and the outer parts of them are of a dark blue, well strip'd with light colours; it seeds extremely well, and is a second blower.

7th, *Gratianus* is a very handsome flower; its stem is not very high, but bears large and long bells, of a very pretty dark colour; it seeds well, and is a second blower.

8th, *Pastor fido* is a large, bold, blowing flower, with a large stem, whose bells are well strip'd with dark stripes, half the length of its petals or flower leaves; it seeds, and is a second blower.

9th, *Passa Jupiter* is a flower which has a thick stem, of a blackish colour, supporting its bells, which are somewhat larger than the former, for whom it is a fit companion to be planted near to; it seeds well, and is a second blower.

10th, *Golconda* is an extreme pretty flower, with a thick and tall stem; its bells, which are large and prettily disposed on the stalk, are well reflected, and have a very uncommon bright, blue colour, mixed with a red colour, which makes a pleasant and strange appearance, resembling exactly what the French call, *une Gorge d'une Pigeon*, or Pigeon's Neck; it seeds well, and is a late blower: This flower bears a high price in Holland.

11th, *L'Azur Croon*, or azure Crown, is of an extreme

treme fine colour, for it has a high stem, richly adorned with large bells of the brightest azure colour that can be seen, so as to attract the beholder's eyes very much; it is a new flower, and is much valued; it seeds, and is a late blower.

12th, *Mosambique* is a prodigious large flower, with a high stem and large bells, of a fine mixed colour of blues, charmingly striped and shaded; it seeds, and blows late.

13th, *Rex Indiarum* is a bold, fullen, dark-coloured flower, its stem is high, which is well surrounded with large bells of a very fine and vastly dark blue colour, striped with black; it seeds well, and blows late.

14th, *Dolphin* is a fine flower, quite resembling the shining various colours of the dolphin fish, with a high stem and large bells, finely and variously coloured; it is backward in seeding, and blows late: This flower is now much valued.

15th, *Gekroonde Moer*, or crowned Moor, is of a dark, shining, elegant blue colour, and its stem is well set with large bells of the colour above described; the pedicles of its bells are short and strong, and bear those bells very erect, and carry a full face; it seeds, and blossoms late.

16th, *Brunon* is a flower of a brown colour, having its stem of the same colour, with strong erect bells, finely striped with a bright shining beau blue; it seeds, and blows late, and is a new flower, and bears a good price.

I come now to describe the light-coloured single, and semi-double flowering Hyacinths.

1st, *Passa Cato* is one of the largest belled single flowers yet raised, it has a middling high stem, thick and very strong; its bells are of an indifferent blue, mixed with a dusky green; it is not so valuable as formerly, and seldom seeds; it blows early.

2d, *Flore maculato* is a fine large flower; the stem is high, the bells of a good light blue, are very prettily, in the innermost parts of its petals, mixed with small drops of a very bright white, from which spotting it takes its name;

name; it is an old, but valuable flower, and has not appeared in the Dutch catalogues for some years past; it seeds, and from which I raised some very fine double and single flowers; it blows early.

3d, *Bontenbelt blauwe en Witte Gestreept bonte*; this is a most charming flower; its stem is pretty high, which is adorned with bells of a middling size, remarkably striped the whole length of the bell, with a bright shining white, and a beau blue colour; it seeds well, and from which seeds was raised the fine double blue flower, *Bonte Souspareille*, which I shall describe in its place; it blows early, and, at its first appearance, resembles what we call our striped cotton-fattin silks, even before it opens its bells.

4th, *Claremonde Bleek blauwe en Witte Gestreept*, is a new flower, and one of the striped sorts, has no difference remarkable in its flower from the preceding hyacinth, but this, that the blue stripes have a very dark colour, and the white stripes are of a shining white colour; it is amongst the class of the second blowers.

5th, *Blandina*; this is a bold flower with a high stem, and large bells of a strong marble colour, and are well reflected; it seeds, and flowers amongst the second blowers.

6th, *Triton* is a large flower, has a strong stem, and large bells of a very pretty colour, the extremities of whose petals are reflected, and show a very bright blue, it seeds, and flowers amongst the second blowers.

7th, *Trebifonde* is a very elegant coloured flower, with a large stem, around which are large bells with stripes of dark and light blues; this flower seeds well, and is a second blower.

8th, *Bifarde Agate* is a very large semi-double flower, having a very strong and high stem, which carries sometimes thirty-eight bells of an extreme pretty agate colour; it seeds in mild seasons, for which it is very valuable; it is a second blower, and continues long in bloom.

9th, *Centaurus* is another semi-double flower, with a strong and high stem, which carries strong semi-double

double bells of a pretty colour, though not so many as the former does; it feeds constantly, and is a second blower.

10th, *Koningin Elizabeth* is a fine well coloured flower, has a good stem, upon which are bells of a light-coloured blue, which are well reflected, but are somewhat pendulous, or hanging downwards: it feeds well, and is a second blower.

11th, *Prince Van Asturien* is much such another flower, in its colour and stem, but its bells are more erect; this root is very apt to fly into hearts and off-sets, whereby it seldom feeds; it is a second blower.

12th, *Fabius Maximus* is a vast large flower, with a strong stem, which carries very large bells, finely enamelled with three colours; it feeds, and blows amongst the earliest.

13th, *Koningin Anna*, or *Queen Anne*, is a sweet light coloured flower, its stem is of a good height, adorned with good bells well reflected, of a pretty agate colour; it is a late blower, and feeds well.

14th, *Varro*, as to its stem and bells, is much such another flower, but it carries more bells upon its stems, feeds well, and blows late.

15th, *Schoone Asia*, or pretty *Asia*, resembles the two former flowers, but has a fine stripe in its bells of a dark blue; it feeds well, and blows late.

16th, *Ganymedes* is an extreme pretty flower; its stem is high, and is beautifully adorned with bells finely enamelled, with two sorts of pretty blue colours; it feeds, and is a second blower.

17th, *Premier noble blue* is a flower very much resembling the *Premiere noble white*, in the form of its stem and bells; it feeds, and blows early.

18th, *Grifdeline Royale* is a charming flower; it is of a remarkable *Grifdeline* colour; its stem and bells make a noble appearance; it should have a place in every good collection of hyacinths, because, as it feeds freely, one has a chance to raise fine varieties therefrom; it is a second blower.

19th, *Porcelaine Royale* is also a flower of an uncommon

mon grand appearance, its stem is high and great, supporting bells of a fine watered porcelaine colour; it seeds, and is a second blower.

20th, The three Brumal, or Winter sorts of hyacinths, viz. The *Brumalis Januarius*, the *Vroege Garcon*, and the *Vroege*, or early Imperial, deserve a place in every good collection of flowers, upon account of their blowing in *January* and *February*, and may be well planted in clumps of the earliest vernal flowers, as they do not require the nicest care in their culture; and as they often produce great plenty of off-sets, when they are planted in a rich, light, sandy soil.

Having thus described the best sorts of single, and some of the semi-double hyacinths, blue, white, and rose-coloured; I shall proceed to offer my practice of managing the roots of those flowers which carry seeds, the method of sowing their seeds and cultivating them, until they shew their blossoms, in which I had most extraordinary success.

So soon as you perceive the seed vessels of the hyacinths forming, you will then know what roots should remain in the ground, until the seeds are ripened, and what to take out of the ground sooner: Those which remain in the ground, should continue until the seeds are almost ripe, and ought, so soon as you take them up, to be carried into the root-room, and laid up in the particular drawers, upon which the names of the several sorts are affixed, by printed or written labels or papers, whereby a nursery-man in flowers will never mistake the sorts, as is too often the practice of careless people.

So soon as the seed vessels begin to open and shew their seeds black, or some of them brown coloured, they should be carefully looked over twice every day, that the seeds may not shake out of their vessels and be lost: These seeds, when you first gather them, have a clammy substance; wherefore, to prevent moulding, it will be proper to spread them in some airy place, not exposed to the rays of the sun, upon papers in large boxes, where they may lie some days to dry, and they may be  
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put into paper bags, and laid in some airy place for two or three weeks, until you sow them.

The strict attention of a curious florist, to a few general rules I shall lay down, for the cultivating this charming flower, will answer the success desired, and without which it is impossible to attain to it. In the first place, one must be very careful to prepare the compost I here prescribe for them. And, 2dly, to give them fresh compost annually, and to take them up in a proper season after their bloom is over every year, and to cover them in Winter in such manner, as the frost does not reach their tender fibres. And lastly, to give the finest kinds of them proper coverings when they are in bloom, so as their stems may not be drawn, or their blossoms spoiled by the injuries of the weather. The compost I prepared for them is made up in the following manner: From the month of *June* to the month of *November*, I gathered from the pastures what cows dung I could get. (Horses dung, though very well rotted, from experience, is not proper for cultivating Hyacinths, nor any bulbous rooted flower.) I prefer dung of cows, gathered from pastures to that which comes from cow-houses; because the pasture-dung, when it is fresh gathered, is sooner rotted, and stronger, on account of the herbs these cattle feed upon, than from the hay or straw feeding. However, you may use cow-house dung also, if you cannot procure enough of pasture-dung. After having taken this dung into the compost-yard (which should be well exposed to sun and wind, that what compost is there may the better imbibe the nitrous particles of the air, &c.) I turned and tossed it up constantly, until the frost set in for continuing, when I turned it out to three inches depth, and there allowed it to mould and rot by the frosts, which does more in a month towards consuming it, than four months other practice will do. From the first of *March* I continued turning it, and about the twentieth of *April* I laid it up in heaps in form of hot-beds and when I observed it heating, I covered it with near one foot of good hot-bed mould,  
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and had very good cucumbers and pompions on these heaps, with several other hot-bed crops.

Whilst the dung was at this work, I prepared the earth for the hyacinths, in doing whereof there is great care to be taken. The earth about *Haerlem* (where hyacinths thrive best) is of the colour of a black fallow, mixed with a white sand, which, by lying, neither turns of a red, nor of a yellow colour, which is the colour of most of our *British* sand, except that sand which is found upon the banks near the sea, and is called *Holland* sand, which becomes whiter the longer it is kept. The black earth is also found in some of those banks near the sea, but more frequently in short healthy pastures: Wherefore to imitate by composition the *Haerlem* soil (take one third of this white sand, and two thirds of this black mould, ten inches deep below the surface; and taking some of the top sward with it, picking out all the big stones, bring it home to your compost-yard, mix it in the above proportion with the white sand, toss it up often until the earth and sand be well incorporated, and the sward is well rotted, so that it makes an heap of compost, resembling the *Haerlem* soil as near as possible.

I also got a quantity of tan-bark, which had been two years out of the pits, or had been at work in stoves, and riddled it well through a fine sieve, to get the finest of it from its coarsest parts,; (which last are of use to cover your beds of hyacinths, ranuncules, anemonies, and polyanthos narcissus in severe frosts.) This fine riddled bark I exposed to the frosts to mould, and turn it to earth: If you have not tan, take an equal quantity of well rotted leaves of trees, which will do very well.

In *August* or *September*, I took off the mould from the beds of the cows dung, after the crops were gone, and tossed the dung over and over, as I perceived it to want moulding, and in winter, when the frost set in, I laid it again a-breadth, to rot perfectly well before *April*, then I mixed it with all the other materials in the following exact proportion, viz. Two sixth parts  
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of the earth and sand, which were by this time well incorporated, and seemed a blackish fallow ; three sixths parts of this well rotted cows dung ; and one sixth part of rotted fine tan, or leaves of trees ; and after it was well mixed in these proportions, I riddled it very fine : I reserved a large heap of the rotted cows dung unmixed with the above materials, and this I put into the beds which I had made up for the flowering roots, in such a manner, as it might be within reach of the fibres of these bulbs, which is of great service to them whilst they are in bloom, and even afterwards, by enabling them to refurnish themselves with strong bold leaves, stems and flowers for the ensuing year ; and the neglect of making the compost, as is above prescribed, and making up these beds as is here directed, annually, I can assure my readers, is one of the chief causes, if not the principal one, that hyacinths degenerate in *Britain* some years after we get them from *Holland*: For I am quite certain, were we as careful here in managing the compost, giving it to them annually, and in preparing their beds, as is here directed, and as I have experienced for many years in the culture of this charming flower, there would be no complaints of their degenerating, and we might vie with the *Dutch* florists, in raising many beautiful seedlings of this flower in *Britain*, to the saving great sums of money, which are annually sent out of the kingdom to purchase these flower-roots. I have prescribed this compost to be finely riddled, and it is most indispensibly necessary, (notwithstanding what some authors may pretend to say to the contrary,) so as there be not at any rate the least part of clay or clayish particles in all this compost ; but it must be as fine, and free from all cohesion, or sticking in its particles, as the finest meal or flour, that every fibre of the hyacinth bulbs may have full scope to play, and to breed new fibres, on the multiplicity whereof depends all your success in the culture of them. I turned over this compost constantly until *September*, when I used it ; when I come to treat of the large flowering roots,

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shall then give proper directions how to use it, and make up the beds for these flowers to blossom in. At present I return to the sowing of the seeds, and their culture, until they come to blossom, which may be in five, six, or seven years after sowing.

About the end of *September*, which is the properest season of the year to sow these seeds, provide yourself with boxes of good timber, two feet and an half in breadth, and in length about four feet, with many holes in their bottoms, covered with the most concave oyster-shells to allow the moisture to pass off; these boxes should be eight inches deep, rising from the front to the back of them ten inches, that the water in winter may run off from their wooden covers, which is far better and safer, than to put them under hot-bed frames, or any other covers. These boxes should have feet put to them of half a foot high, of good strong timber, to support them from the ground; upon which if they were to rest, or upon bricks, they would imbibe too much moisture, or might tumble from the unsteady laying of the bricks under them.

Having laid the compost into the boxes carefully, so as not to misplace the oyster-shells which cover the holes, take your seeds from the seed bags, and lay them in fresh water for six hours; then lay them upon fine powdered chalk, which will colour them white, so as they may be distinguished from the black colour of the mould, that you may see how and where you sow; place them in rows, one inch asunder row from row and half an inch, seed from seed; and put a small bit of wood at the head and foot of each row, so as at lifting, you may again know where to find their roots, after their seed-leaf is quite decayed; cover them with an inch of the same mould, and let the boxes have a south-east aspect, but not too near a hedge or wall, and in such a situation as they may enjoy the whole rays of the winter sun: Some of those seedlings will come above ground with their seed-leaf, and the husk of the seed on its top, exactly like an onion, in *October* and

and *November*, when you should lay on the surface of the seedling-box some very fine old rotten tan-bark, in order to keep frosts from hurting their leaves and roots, by which they are greatly damaged ; observing also to cover them with the wooden covers every night, and in great rains and snows ; but open them in the day time, except when it snows, although even then in the day time the covers should be supported, to allow a little air to come at them by some proper machine of a hook made for that purpose ; for the more care you take to preserve them from moulding by a too close confinement, they will thrive the better ; and in this season they must be carefully attended.

———— If the frost is very intense, thrust in a good deal of straw in the empty space betwixt the earth and the bottom of the box, and it will be necessary to lay over the wooden covers straw hurdles, which I would chuse to fold over the seedling-boxes, rather than to run in cheques, to cover them ; this last method is erroneously practised by some, being troublesome to the gardener, and often disturbs, by hard pulling, the young seedlings.

In this situation, and with this care they may remain until *February* or *March*, when the covers may be opened all day, and at night too, especially as they have the small covering of bark upon them, through which a sudden dash of rain cannot so easily penetrate, as if they had no cover at all ; nor would I remove the cover of bark from them, until their leaves were gone, because they may receive some nourishment from it, as well as from the compost wherein they are sown ; and if in dry seasons you were to give them water, it will glide more easily through the parts of the bark, than if you were to water the naked surface of the earth, whereby, from the finest rose of a watering pot, the earth might be drove off from their roots, which is very prejudicial to them. ——— Take care also, in hot sunshine weather, that you erect a shed between them and the sun, so as to shelter their young leaves from its too hot rays, whereby they might be hurried down,

which would hurt them, taking care not to cover the boxes with the sheds, but that the young plants may enjoy all the free air possible, a practice which contributes much to their growth.——About the middle or end of *May* their leaves will be all faded; and about the 30th of *June*, removing the bark, with your hands, look for your small wooden marks at the extremities of the rows, whereby you will know them; then searching for the roots, lift them, and you will observe that they will be as big as small pease, and many of them as large as small shallots; having put out one or two small fibres at most, which do not take from them; then lay them upon papers to dry, in a place of the root-room, where they may enjoy all air, but not any rays of the sun; but be sure in the interval betwixt their leaves fading and their roots being lifted, to give them no water.—In case you have neglected to lift all these young roots, take a fine sieve, riddle the earth in the boxes, and the young roots will be found in the sieve, if you have not lifted them all, and lay those up with the others, taking all the earth out of the boxes, and lay these boxes on their sides, to dry and sweeten with the air, until you replant your seedlings, which you should do in six weeks, after having cleared them from all their withered roots, mouldiness, or rotten skins upon their young bulbs. Observe to take as little of the outward skins, which are sound, from their bulbs, as possible.—Some persons in their practice do not lift these young roots the first season, but by experience I find this to be a fault; for after their leaves are down, if the young roots are unactive, they are better out of the ground than in it, where, by the moisture of the earth, they are often very subject to rot; and if they in this inactive state are to be kept dry and not watered, they can be kept better and more dry out of the ground than in it; besides this, to give fresh earth annually to them, will make their roots grow larger than otherwise they would, but you may try both methods.

To return to the planting the young roots for the  
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second year, I laid the shells and compost in the boxes in the same manner as I did the first year, and planted their roots six weeks after lifting, or sooner, as I saw them springing, in rows, three inches asunder, and two inches root from root, observing to plant them in the finest earth you have, in order that their small bulbs may be ready to strike new roots again, and to preserve the bulbs from moulding in the new compost wherein they were planted before they emit their young fibres, by which management few or none of them rotted.

So soon as the frosts set in, I covered them with the same sort of tan, and took the same care I did in the former year, and used as much, or rather more care, that by the hot sun in the spring their leaves should not be hurried out of their verdure, which is always very injurious to them; and in winter I put a little more bark upon them, to preserve their young roots and fibres from frosty injuries.

At the lifting season, if they prosper well, their roots should be as large as common shallots; and the same method should be observed in taking them up, and whilst out of the ground in managing them in the manner I did the former year.—About the middle of *September* I replanted them, into larger and deeper boxes, the length and breadth as will suit you, the depth two feet, that they might contain a greater depth of earth in them.—As their fibres will be longer as the roots advance in bigness, I planted them in rows three inches asunder, and two inches root from root, for the more room they have they will prosper the better. I would give them the same culture this year, which I did the two former years; but if you find the situation, wherein you put your boxes in winter, is too near a wall or hedge (both which situations should be avoided) you must remove the boxes into a more open and more shaded exposure; but to remove heavy boxes with their earth in them is not easy; therefore in the sides of your boxes put iron-keepers to admit large poles, such as are used to sedan-chairs, and two men

will carry these heavy boxes to any part of the garden you please, and thereby you can nurse those roots longer in boxes than otherwise you could do, if they were fixed to one exposure through the whole year; for I do not approve to plant them in beds sooner than the third or fourth year after sowing, because they have not strength to endure our common beds in the open air sooner, although this is practised by some, and thereby have lost many roots myself.—I lifted them again five weeks after their leaves were down, and laying them in the root-room, I managed them in the same manner as I did the former years. By this time they were pretty large roots, and about the beginning of *September* following, I dug a trench in the garden three feet deep below the surface of the ground, taking out all the natural earth, and making the bottom of the trench level, I put in the compost which was formerly prescribed, which had never been used, and filled up the trench therewith to one inch below the surface of the path-way; this bed should be only four feet broad, and what length you please, according to the number of seedlings you have. After the bed has settled a few days, I planted the roots therein, in the following manner: Having laid out eight straight lines the length of the bed, I took some of the driest sandy earth I could find, and laid it over the surface of the bed half an inch thick, and with my hand thrust the roots down into it, fixing them so, that by the riddling of the earth, with which they were covered, I might not misplace them, or turn them upon their sides.—I gave them a covering two inches and an half deep of the compost; in which situation they remained until the frosts set in, at which time I covered them with rotted tan near two inches thick, and also filled the alleys of the beds with the tan quite up to the tops of beds.—I did the same with the beds where the old roots were planted, to prevent frosts entering the sides or ends of these beds; and beyond the ends of the beds I laid the old tan two feet thick to keep off all frosts.—Before I planted these young roots, I took stakes of  
timber,

timber, in which I put iron eyes the whole length of the bed, and drove them into the path-ways near the edges of the beds, opposite to one another, on both sides thereof, and at four feet distance from each other; these stakes support and their eyes in the spring receive the ends of hoops, which are thrown over the beds, and along which I put rods to support mats as a shade for the flowers and leaves of the plants from the sun, and injuries of the weather; but those hoops I never put over the beds, until I had taken off their tan-cover with the hand, and had laid half an inch of good stiff clayish garden mould, without any mixture of sand, above the compost; the use of which is, that in watering them (which may be necessary) the loose sandy earth may not be taken from their roots. Some of them will shew flowers, which, as soon as they do, stick down by the side of their bulbs, long wires painted green, which are made on purpose, to which fasten them, when their flower stems rise, gently first below their bells, and afterwards as they rise higher betwixt their bells, with a bit of bass-mat, in the best manner you can, marking what are good flowers. They must continue in that position until the lifting season, and as they will then be large roots, they must be lifted in the method, and at the same time with the large flowering roots which you get from abroad, and which, shall be treated of in the culture of those roots: Some of the best sorts of the double flowers I shall now proceed to describe, in the same manner as I have done the single ones.

The first which offer, are the dark coloured double blue hyacinths, in *Mynbeers Voerbelms* and *Van Zompe's* catalogues for the year 1754.

1st, *Passetoute*, is a mighty fine flower, its stem is not very high, but is adorned with large bells of a charming colour, with a stripe through them of a very dark colour; its innermost petals are large and well disposed: This flower well deserves its name, is an early blower, and blows well in water-glasses.

2d. *Kroon Van Braband*, or crown of *Brabant*, is a very pretty flower, its stem is higher than the former, and is beset with dark coloured bells, whose innermost petals are smaller and finely enamelled with several colours; it blows early, and also in water-glasses.

3d. *Violette Croon*, or Violet Crown, is a mighty pretty flower of a charming violet colour, its stem is high, the bells are very double, large, and well reflected, shewing their dark hearts, they are thick set, or rather grow in a clump upon the stem; this flower blows early.

4th. *Incomparable*, is a pretty flower upon a tall stem, which is extremely well set with small violet-coloured bells, which in mild seasons bear seeds; it is a very pretty flower, and should be in every good collection of hyacinths.

5th. *Semper Augustus*, is a noble flower, with a high bold stem, which is surrounded with a great many large double bells well reflected, and which display their beautiful innermost petals, charmingly enamelled with a beautiful diversity of brown and blue colours; it blows early.

6th. *Gekroonde Saphire*, is a very fine flower, with a high stem, and a fine spike of large saphire-coloured bells, well reflected; it bears a fine truss of bells at the top of its stems, as all the *Gekroonde* flowers do; it blows early.

7th. *La Grand Belle*, is a flower of an admirable fine violet-colour; it is an old flower, and had the name of violet added to it, until the flower, which is hereafter immediately described, appeared in the *Dutch* catalogues;---it has a slender stem, and the bells appear on two sides only, they are long, and not well reflected; it blows early, and is valuable only for its fine strong colour.

8th. *La Grande Violette*, is a fair fine flower, with a bold stem, upon which are placed large, erect, open, and well reflected bells, of a very deep violet-colour, which makes a pretty appearance; it is an early blower, and continues long in its brightest bloom.

9th. *Jeu-*

9th. *Feurweell van Holland*, is a fine well chosen flower, of a middling size, the outward parts of its bells are of a fine imperial blue colour, the stem is high, the bells are well set thereon, and are well reflected, showing an elegant heart, well mixed with brown, blue and purple colours; it is a second blower, and continues long in full bloom.

10th. *Purpre sans pareille*, is an extreme pretty flower, has a high and bold stem, with pretty bells very double, erect, and well reflected, which show their innermost petals to perfection, very well enamelled with purple and light blue colours; it is a second blower, and in a bed of hyacinths, where double blues and double whites are planted alternately, is a very fit companion for the *Koning van Groote Britannien* double white hyacinth, the time of their flowering being the same.

11th. *Keyser Amurath*, or Emperor *Amurath*, is a fine bold flower, with a high blackish coloured stem, with large bells, pretty well reflected, which at their first opening have a small white leaf in the bottom of its cup; it is a second blower.

12th. *Perseus*, is a fine handsome flower, its stem is high, its bells are pretty large, much of the colour and form of the *Passetoute*, but has a longer spike of flowers on its stem; it is an early blower.

13th. *Mars*, is a fine large flower, with a high stem, on which grow its large bells, not very double, but they have a fine black coloured heart; its flower is of a bold aspect; it is a second blower.

14th. *Counseilleur Burkline*, is one of the finest flowers yet produced from seeds, some of its lower bells being of a most beautiful enamelled colour, upon a large thick stem; and, besides their being well reflected, are as broad as an ordinary ranunculus; it is a most valuable flower, and an early blower.

15th. *Cedo nulli*, is an extremely pretty, large, new flower; it has a fine high and noble stem, its bells are very large, thick set, and well reflected, of an exquisite fine colour, and has a heart very prettily enamelled with  
variety

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variety of colours, and continues long in bloom ; it is a late blower.

16th. *Brunette amable*, is a charming pretty flower, having a pretty high stem, on which are thick set dark-coloured bells, which make a very pretty appearance ; it is a second blower.

17th. *Rex Negros*, is a fine large dark-coloured flower, with a high stem ; its bells are well reflected, and display a heart of the most dark colours of all the blues ; it has a noble aspect, and is a second blower .

18th. *Koning der Mooren*, or, *King of the Moors*, resembles the flower immediately above described, but has a large black-coloured stem, and its bells are of a very dark colour, nevertheless, they are vastly pretty ; it is a second blower.

19th. *Tros-Blom*, or *Bouquet*, or *Cluster of Flowers*, is named very properly, it being a large noble flower, with a high, bold, and floriferous stem, and the bells are numerous, and well reflected, with enamelled hearts ; it is a second blower, and bears its bells in a long spike.

20th. *Grandeur Superbe*, although it is a low-priced flower, yet it is one of the prettiest and largest flowers amongst the whole tribes of hyacinths ; it has a high floriferous stem, its bells are very large, erect, and well reflected, which display a pretty heart ; it is a second blower.

21st. *Overwinnaar*, or, *Conqueror*, is an exceeding fine flower, it has a small stem of a black colour, which carries at most six or seven bells, which are very large, erect, and of a round figure, are well reflected, and have this particularity in them, that from the center of the heart of the flower, there come out two small long petals or leaves, which go to the outmost verge of the flower, of a quite snow-white colour, without any mixture of blue in them ; it is a late blower, and at its first appearance was sold for one hundred guilders per root.

I am now to describe some of the prettiest light-coloured double blue hyacinths, beginning with,

1st. *Bonne sans pareille*, or *Good without an equal*, it is an extreme pretty flower, has a high stem, adorned with very double bells, which are most beautifully striped with blue and white through their whole petals; it has a fine spike of flowers, and blows early.

2d. *Souveraigne*, is a very pretty flower, with a high bold stem, which carries very double bells; the petals are well reflected, showing a fine heart, enamelled with many small petals of a very dark blue; it blows early, and carries a fine spike of flowers.

3d. *Agæt Mignon*, or *Small Agæt*, is a fine flower, of a high stem, and but a small bell, semidouble, but well reflected, and the whole bell cornered to its bottom; it sometimes seeds, and has a very fine spike of flowers, and blows early.

4th. *Koning Willem*, or *King William*, is one of the best semi-double flowers yet known; it seeds constantly, has a pretty high stem, and pretty well reflected bells, and blows early. I have raised a great many vastly fine double flowers, of most extraordinary beauty, from its seeds; it has a fine spike of flowers.

5th. *La Plus Belle du Monde*, or *The greatest Beauty in all the World*, is a very fine flower, it has a pretty stem, with very double bells, which hang their heads a little, as being shy to show the beautiful enamelling of their innermost petals, which continue a long time in full bloom; it is an early blower, and has a good spike of flowers, and is a very fit companion for the *Fleurweel van Europa* double white hyacinth, the form of their bells, and the season of their flowering being much the same.

6th. *Flora perfecta*, or *perfect Flower*, is a pretty flower, it has a good stem, which carries bells of a very fine colour, in which there is not a little variety; the innermost petals of the flower are very large, like the *Passetoute*; it is a second blower, and its flowers grow in trusses rather than in spikes, in a most regular and perfect manner.

7th. *Landgraaf van Soutzemberg*, or *Earl of Soutzemberg*,

*berg*, is a very fine large flower, has a bold stem, which carries large and very double bells, whose petals are well reflected, displaying a dark blue heart of a nice form; it is an early blower, and has a fine spike of flowers.

8th. *GLORIA MUNDI*, is one of the finest, largest, and most showy flowers as yet raised, and at once strikes the eyes of the beholders with wonder and admiration, on account of its most beautiful colours, the largeness and vast number of its bells, which are admirably disposed around its large and high stem, and are well reflected; all which form such a beautiful and lustrous spike of flowers, as has not yet appeared amongst the double blue hyacinths; it is a second blower; at its first appearance it was sold for 500 guilders per root.

9th. *Merveille du Monde*, or *Wonder of the World*, is a very pretty flower; it has but a small stem, and carries but few bells; but its excellency consists in the largeness of its bells, and their being well reflected, which display their hearts most wonderfully enamelled with a surprising variety of colours; it is a late blower.

10th. *Koningin van Vrankryk*, or *Queen of France*, is a very pretty flower, with a tall stem, which carries many bells, well reflected, which show a very double heart, well mixed with several agreeable colours; it makes a good spike of flowers, and is a second blower.

11th. *Praal Creraate*, or *Open Ornament*, is a very charming flower; its stem is none of the highest, but its bells are very large, and well reflected, which show an enamelled heart, much like the *Merveille du Monde*, but the colours are more distinct; this flower blows in a truss, and is a second blower.

12th. *Pronk Jeuweel van Flora*, or *Flora's pretty Jewel*, is a mighty pretty flower, with a fine stem, surrounded with very double, well reflected, erect and round bells, which display a heart of a fine mixture, of dark blue colours; it makes a fine spike of flowers, is a second blower, and merits a place in a good collection of hyacinths.

13th. *Gloria Florum*, is a very large double flower, with

with a high stem, which is richly garnished with large and very double bells, of exquisite beauty, as to their colours and their shape, they make a vast fine spike of flowers; it blows early, and continues long in bloom.

14th. *Rien ne me surpasse*, or *Nothing surpasses me*, is a vast fine flower, with prodigiously large expanded bells, upon a high stem, which are of an exquisite fine beau-blue on the outside of their bells, are somewhat pendulous, their hearts or innermost petals being of a vastly dark coloured blue, feathered with petals like rays all about them, which make a mighty fine showy spike of flowers; it is a very late blower, and excels most flowers I know.

16th. *Illustre d'Hollande*, or *Illustrious of Holland*, is a vast fine, large, and double new flower; its stem is high, its bells surprising as to their form and colours for beauty; it is a bouquet or truss-blowing flower, and blows amongst the seconds.

17th. *Passe non plus ultra*, is a most surprising beautiful large flower; its stems, its bells, together with the uncommon enamel of its inner petals of the bells, strike the eye with a most surprising lustre; it is a second blower. This flower has a particularity in it, which is this: The sides of the bulb open in the spring, to allow (as it were) the great bud and leaves to pass out easily from the heart of the bulb, and these chasms in the bulb do not close up until it has fully sucked enough from the earth in which it is planted to fill up these chasms; so that when you intend to lift it, remove the earth from the bulb, and observe if the bulb has filled up its chasms, one, two, or more; and if they are filled up, and the chasms are not there, and the bulb is round and sound, then, and not till then, is the time to lift it, or such bulbs which grow in this extraordinary vigorous manner.

18th. *Aspasia Panache*, is one of the prettiest flowers which have appeared; its bells are large, quite round, numerous and erect, displaying remarkably marbled, or rather harlequined bells, with many light and dark blue

blue colours ; it is a fit companion for the *contrôleur-general* double white hyacinth.

I come now to describe some of the best double white and rose coloured hyacinths, and begin with those which are pure white, without any mixture.

1st. *Morgen Staar*, or *Morning Star*, is a very fine flower, with a pretty high stem, the bells are large, and pretty double, and well reflected ; it grows in the *Bouquette* or truss form, and not in the spike manner ; it blows early, and is a fit companion for the *Passetoute* double blue, the figure of their flowers and time of blowing being much the same.

2d. *Paerle Croon*, or *Pearl Crown*, is a pretty flower, its stem, is indifferent high, upon which are seven, eight, or ten bells, of a fine pearl colour, well reflected ; this blows early, but has not appeared in the *Dutch* catalogues for some years past.

3d. *Uirgo*, is an extreme pretty and very double flower, with a bold high stem, upon which grow many double erect and well reflected bells, of a bright shining white colour, which continue long in bloom ; it blows early, and is a very fit companion for the *Bonne sans pareille* double blue hyacinth.

4th. *L'Admirable*, is a very pretty flower ; its stem is high, adorned with large double long bells, which, both in their insides and their outsides, are of a most extraordinary shining white colour ; this is a second blower, and has a long spike, and is a fit companion for the *La Grande Violette* double blue.

5th. *Kroon Vogel*, or *Crowned Bird*, is a very handsome large airy double flower, with a high stem, which bears large double bells erect, and well reflected, in the *Bouquete* or truss fashion ; it is a second blower ; this is a fit companion for the *Violette Croon* double blue.

6th. *Colossus*, is a very large strong double flower, has a large strong stem, with many bells, which are double, erect, and well reflected ; it blows late in a  
spike,

spike, and suits well with the *Czarine* double blue hyacinth.

7th. *Feuweel van Alfema*, I must place this flower here, although it is placed amongst the double whites with violet hearts, by mynheers *Voerbelms* in their catalogues; but I could never observe any violet colours, or any other colours but white in it.---It is a great beauty, is extremely double, has a high stem, upon which grow bells very large, erect, and well reflected, and double, to that degree, as that one flower seems to come out of the heart of another, as some of the very double carnations do. This has a good spike of flowers, and is a late blower; and, at its first appearance in *Holland* was sold for a very great price.

8th. *Saturnus*, is a fine large new flower, with a high stem, surrounded with great double, erect, well reflected, and most magnificent bells. The bells of this flower are set upon their pedicles in a very uncommon manner, which botanists call, *floribus pediculo insidentibus*, the flowers fitting upon their pedicles, as the flowers of the *Astragalus maritimus annuus*, *procumbens latifolius*, of *Tournefort* do, which this flower, very singular in its appearance, does also; it blows amongst the seconds, with a fine spike of flowers, and should be in all good collections of double hyacinths.

To the pure whites succeed double white hyacinths, with violet-coloured hearts.

1st. *Feuweel van Europa*. This is a very double flower, with a good stem, upon which are placed seven or eight very double bells, erect, and charmingly well reflected, which display their hearts, well mixed with violet colours; it blows in the *Bouquete* fashion, and early, and is a fit companion for the *La plus belle du Monde* double blue hyacinth.

2d. *Rose blanche et Violette*, or *White and Violet Rose*, is one of the prettiest flowers of the whole hyacinth tribe: its stem is indifferently high, surrounded with ten or sometimes fourteen bells, of a most extraordinary colour, being of such a shining white, as to dazzle the eyes

eyes of the beholder, and are very double and well reflected, which display a charming large heart, of an uncommon dark violet-colour, very distinct and large, without any mixture of white, and it has very often a double bell at the top of the stem, which makes an uncommon beautiful appearance; it blows in the *Bouquete* or truss fashion, continues very long in the perfection of its bloom, and is a second blower.

3d. *Turksen Keyser*, or *Turkish Emperor*, is an extreme pretty double flower, with a high stem, which carries very double bells, erect and well reflected, which display a large heart finely enamelled with dark purple and green, and a faint white colour; the uttermost petals being turned up in form of the brims of a hat; it has a fine spike of flowers, and is a second blower.

4th. *Blanche Noiratre*, or *Blackened white*, is a charming flower, with large bells of a fine white colour, with its petals powdered all over with small black powderings, like small particles of sand; they are well reflected, and are erect, and grow upon a good stem, in the *Bouquete* or truss fashion; it is a second blower.

5th. *Staatens General*, or *States General*, is a charming flower, its stem is not of the highest sort, but is surrounded with vastly fine large bells well reflected, which display a fine mixed heart; it is a second blower.

6th. *Assemblage de Beutes*, or *Assembly of Beauties*. I am very sensible, that the exactest description of this flower comes very far short of the original, which is really one of the most charming flowers of all the hyacinth tribes; its stem is not very high, but is adorned with bells, some of which are broader than an *English* crown, erect and well reflected displaying a large heart, charmingly mixed with violet, white, scarlet and carnation colours; it continues a long time in high bloom; it is a spiky flower, and is a late blower; it is a fit companion for the *Cedo nulli* double blue hyacinth.

7th. *Junio*, is a very pretty flower, with a high stem, the bells are very prettily reflected, and shew a fine, small,

small, violet heart; they are somewhat pendulous, but it bears a fine spike of flowers, and blows late, and has not been in the *Dutch* catalogues for some years.

8th. *Koningen Eiber*, is a very pretty flower, with a high stem, and good bells of a shining white colour, erect and well reflected, shewing the innermost parts of its petals powdered, as it were, with a violet dust. This has a fine spike, and is a second blower.

I am now to describe some of the double white hyacinths, which are mixed with red colours.

1st. *Belle blanche incarnate*, or *Pretty white and carnation colour*, is a fine flower, with a high stem, which bears large bells of a shining white colour, erect and well reflected, the inner petals of which are of a bright carnation colour, without any mixture; it has a fine spike of flowers, and is an early blower.

2d. *Feu d'Amour*, or *Fire of Love*, is a charming flower, with a high stem, upon which grow large bells well reflected, but somewhat pendulous, of a bright white colour, having a very large heart, of an extraordinary scarlet colour; it has a fine spike of flowers, and is a second blower.

3d. *Comptroller General*, is a good flower, it has a short stem, upon which are nine very large double, erect, and well reflected bells, which display a large heart, of a light carnation colour, which often changes to white before the flower fades; it blows with the seconds, and in the *Bouquette* manner; this flower blows well in water-glasses.

4th. *Koning David*, is a pretty flower with a middling stem; its bells are large and very double, erect and well reflected, and shew a heart very prettily enamelled with red; it is a second blower, and blows in the *Bouquette* or trufs fashion.

5th. *Koning Van Groote Britanniën*, is an extreme fine flower, with a high bold stem, which bears large, double, erect and well reflected bells, which display a heart mixed with scarlet, violet, white and green, in a very elegant manner; I have had each bell of its lower

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tire bigger and broader by an inch than an *English* crown; it is a second blower, and has a fine spike of flowers; this flower blows well in water-glasses.

6th. *Koning Sesostris*, is a charming fine flower, its stem is not so high as the former flower, but its bells are as large and well reflected, of a vast shining showy white, with a large bright scarlet heart, entirely of one colour, and very splendid; it is a second blower, and bears a pretty spike of flowers.

7th. *Koning Solomon*, is one of the grandest and prettiest flowers which has ever appeared amongst the hyacinth tribe; and it may well be named *King Solomon*, as it might justly vie with that great prince, in the prime of all his glory; this hath a high and bold stem, adorned with a great number of large, strong, succulent, spicy-smell'd, erect, and admirably well reflected bells, which attract the eyes, inspire joy to the beholder, and display a large heart most admirably enamelled, with carnation, white, yellow, and bright green colours; it has a noble spike of flowers, and is a late blower: At its first appearance, it was sold for 600 guilders per root.

8th. *Flos solis*, is an extreme pretty flower, with a high stem, surrounded with fourteen bells of a middling size, and of an extreme pure white colour, fringed like the sun-flower; in the middle of whose well reflected bells, appears a large heart of a very deep scarlet colour, without any mixture; it flowers in the *Bouquette* manner, and is a late blower.

9th. *Vogel Struys*, is a very fine large flower, with a good stem, and large well reflected bells, of a beautiful white colour, which shew a large, good, red heart; it blows in the *Bouquette* fashion, and is a second blower.

10th. *Stadbouder Van Holland*, is such another flower as the *Staaten General*; it has a large stem, adorned with bells of an extraordinary size, erect and well reflected, which display a heart charmingly enamelled with scarlet, carnation, white and green colours, intermixed

termixed in a most beautiful manner, and even most distinctly, so as one can perceive the different colours at a distance; it has a fine spike of flowers, and is a second blower.

11th. *Berg Vesuvius*, or *Mountain Vesuvius*; this is the prettiest double white hyacinth I ever saw; its bells are very double, very large, and of a round perfect form, and has the largest and the finest deep coloured scarlet heart yet seen among the double hyacinths; in short, he who is possessor of this flower, has the best and most beautiful of all the double white and red hyacinths; it has a noble spike of flowers pyramidally set, and is a second blower; it is one of the best flowers yet known.

12th. *Gloria Hollandiæ*, is a most magnificent, and a most charming new flower, with a large, strong, high stem, which is adorned with bells vastly large, double and well reflected, displaying the whole inner petals or heart of the flower, in a whole congregated mass of bright scarlet, and strong gold colours; few flowers can compare with, and scarce any excel it, in its fine spike; it is a second blower.

13th. *Gloria florum suprema*, exceeds all of its kind yet raised, for its high stem, erect, well reflected bells, of a most snowy white, large and well disposed to admiration, displaying a vastly large heart, of a most shining scarlet, a bright carnation, and grand gold colours finely enamelled; it is a new flower, has a noble spike of flowers, and is a second blower.

14th. *Baron van Wafenaer*, is a very fine new flower, has a good stem, adorned with bells, erect and well reflected; which, over the whole inner large petals, shew a very fine mixture of red, yellow, and green colours; it has a fine spike of flowers, and is a second blower.

I shall now describe some of the double white hyacinths, mixed with flesh colours.

1st. *Amytas*, is a fine showy flower, it has a pretty high stem, well set with large white bells, pendulous, but well reflected, which display faint carnation stripes,

through most of the innermost petals of the flower ; it has a fine spike of flowers, and is a second blower.

2d. *Palais Van Juno*, or *Junos Palace*, is a noble fine flower, with a very high stem, which sustains many very double, large, erect, well reflected bells, whose hearts have a charming blush through them ; it has a fine spike of flowers, and is a late blower.

3d. *Griffiere Van de Staaten General*, or *Griffiere of the States General*, is a noble, high, bold-stemmed flower ; its bells are large and double, and all over their inner petals carry a charming mixture of bright carnation colours ; it has a fine spike of flowers, and is a late blower.

4th. *Prins Frederick Van Baden-durlach*, is a fine high stemmed flower, with a noble aspect ; its bells are large, very double, erect, and admirably well reflected, which display a heart of a fine carnation, white, and a green mixture ; it has a fine spike of flowers, and is a very early blower.

5th. *Grand Rose Royale*, is a very large and a very charming double flower, a pretty stem, sustains large, well reflected, flesh-coloured bells ; it blows in the trufs or *Bouquette* fashion, and is a late blower.

6th. *Perfetta*, is a charming flower, it has a high stem, which bears very neatly shaped, erect, well reflected bells, which have elegant hearts of rose colours ; it bears a good spike of flowers, and is a second blower.

7th. *Robin*, is a good semi-double flower ; it bears seeds in a mild season very freely, and therefore is valuable ; it is a second blower.

8th. *Eucharis*, is an extreme pretty flower, with a good stem, its bells on the out-side are of an elegant white colour, erect, and well reflected, having hearts of a most charming blush colour ; it has a good spike of flowers, and is a second blower.

9th. *Agamemnon*, is a very fine, large, old flower, with a high noble stem, upon which are placed very large flesh-coloured bells, erect, and well reflected ; it makes a very pretty show, has a good spike of flowers, and is a late blower.

10th. *Rose*

10th, *Rose en douceur*, or *Rose in its Sweetness*, is a most charming rose, or rather a flesh-coloured flower, with a good stem, large, double, erect, and well reflected bells, which display their hearts charmingly enamelled with different sorts of rose colours; this is a new flower, blows in the bouquet manner, and is a second blower.

11th, *Grand Monarque du France*, or, Great French Monarch, is the largest belled hyacinth yet known, erect, noble in its appearance, and really strikes the eyes with awe, respect, and reverence; it is a second blower, and adorns a collection of hyacinths.

I come now to describe the red-coloured hyacinths, which are the finest kinds of the double, upon account of their admirable colours, and which of late years have been much improved by the many pretty flowers which have been raised of these colours from seeds, by many of the best florists in *Holland*, and which at their first appearance have been sold for very considerable sums of money.

1st, *Aimable Rouge*, or *pretty Red*, is a very pretty small flower, its stem is not high, its bells are pretty double, erect, and have a most agreeable red colour in the bottom of the bell; it is an early blower.

2d, *Coralline*, is much such another flower, with a higher stem, and the bells are better reflected, and have a mixture of coral and carnation colours; it is an early blower. There is another kind of this flower, which blows later, and is called by the name of *Coralline tardive*, or late flowering *Coralline*.

3d, *Rose Illustre*, is a very pretty flower, with a high stem; its bells are large, erect, very double, and well reflected, which display their hearts of the most beautiful blush colour, and a bluish shade mixed with it, that can be seen; it is an early and most charming spike of flowers, and has most uncommon colours.

4th, *Pyramidale Incarnate*, is a very pretty carnation coloured flower, without any mixture, in a pyra-

midal form ; it has a high stem, the bells are but thinly set upon it, are erect, and very well reflected, which show their hearts of a deeper colour than the outsides of their petals ; it has a pretty aspect, a fine spike of flowers, and is a second blower.

5th, *Veltbaen*, or *Field-ben*, or Poppy, is a very fine flower, a good stem, and bells well reflected and erect, which in their hearts have this singularity of three small petals or leaves, as red, and of as bright a colour as our field poppies, from whence it takes its name ; it is an early blower.

6th, *Rose Krans*, is a fine flower, its stem is not very tall, its bells are small, and rather long, indifferently reflected, but it has a very fine rich rose colour ; it blows in the Bouquette fashion, is a second blower, and sometimes seeds.

7th, *General Veltugmeeſter*, or *General Field-maſſhal*, is a noble high stemmed flower, with large, erect, round, double, and well reflected bells, of a good rose colour, with a greenish shade, which is its only fault ; it has a fine spike of flowers, and is a second blower.

8th, *Gulde Zon*, or *Golden Sun*, is a vast fine, large, rich coloured flower, with a high stem, large, erect, very double and well reflected bells, which display a heart of a noble dark carnation, it blows in the Bouquette manner, and is a late blower.

9th, *Gloria Rubrorum*, or *Glory of the Reds*, is an extreme fine carmyne-coloured flower, with a noble stem, which is remarkably adorned with bells, displaying bright rose colours in their hearts, and over the whole flower ; it has a good spike of flowers, and is a second blower.

Having thus described the best double hyacinths, I shall proceed to the culture and management of those roots which come from *Holland*, or what become large flowering roots in this country.

So soon as the roots arrive from *Holland*, I would direct to plant them, provided it is soon after the end  
of

of *September*, that season being the best for planting the double hyacinths, which I would perform in the following manner : Stake out a convenient place in the garden, not too near a wall or hedge, and at the same time, sheltered from winds and storms as much as you can, of what length you please, but of breadth five feet ; and taking out the natural earth to the depth of three feet below the surface of the path-way, level the bottom thereof, then lay in eight inches height of well rotted cows-dung, beat it well down ; and levelling this, lay over it sixteen inches of the reserved heap of dung and sand, after you perceive it has been well rotted and made very fine ; by this means twenty four inches of the three feet will be filled up of this trench : And my reason for laying the sixteen inches of this well rotted dung, and a fourth part of sand, is, that the extreme parts of the fibres of the hyacinths may reach the same, and may from thence suck what is sufficient to give you a strong flower for the succeeding year, and to supply the great succulency of their strong stems and bells which they send out every year. Above this dung and sand, fill the bed up with the compost described, as I formerly mentioned, until the compost be near equal with the surface of the path-way ; then lay on the surface of the compost one inch of your sandy earth, the purest and finest that you have : Take your roots and plant them four or five roots broad, in a bed of five feet breadth, in a quincunx order ; and be sure that each of the outermost rows be six inches at least, from the outermost verge of the bed, and eleven inches root from root every way, thrusting them down with your hand into the earth more than one inch, to keep them fast, so as not to be overturned by the laying on of the compost above the bulbs, to the height of three inches ; above that, riddle, or lay on, one inch of good garden earth, whereby there may be four inches of earth above the bulbs. I have often after planting the hyacinth bulbs, about the beginning of *October*, covered them with no more than two inches of their compost until the

beginning of *November*, and have had great success with them by this method: For by experience I know, that if there is too much earth above their roots, they will not strike out one fibre, and the roots will rot infallibly; because too much earth above the new planted roots, excludes the air from them, which this way transpires through the thin cover of earth to the bulb, which facilitates and provokes it to send out its fibres. As soon as the frosts set in, or by the end of *November*, I always covered my beds of hyacinths, double and single, with two inches of good earth above the two inches of the compost earth, with which I covered the bulbs immediately after planting, whereby there was four inches of earth above them, and three inches of old rotten tan-bark, or fallen leaves of trees, over the earth, and also two feet beyond the ends of the beds, and filled the alleys betwixt the beds (which may be two feet broad) as high as the top of these beds, with this rotted tan, which I did not take off them, until the end of *February*, or beginning of *March*, according as the weather was; and if the tops of these beds were raised four inches above the pathway, I laid in the old tan into the alleys of the beds, to the height of the tops of the beds, to prevent the frost getting into the bulbs which are planted upon the out-sides of the beds. I very often covered the tops of the beds with pease haulm, which is a defence against frost, as well as the bark, its a lighter cover than tan, and is more airy, and the wet rancid vapours from the tops of these beds of rich soil, pass more easily off through this straw, than through the tan, which often prevents the roots of hyacinths rotting, after they are planted, and have struck out their fibres, which daily happens. I also observed to plant a double white and a double blue hyacinth in the first row, and so alternately the whole length of the bed, planting always those together, which blew at a time, or at one and the same season, that is early blowers, second blowers, and late blowers, all by themselves, and as near together as possibly the season of  
their

their blowing can admit. And the second row I began with a double blue, and then a double white, in the quincunx order, to the end of the row, and in the same manner with the third and fourth rows. I observed also to remove the tan in *March* with the hand only, and not with any instrument, in case of injuring the young buds of the leaves and flowers of the hyacinths, which in *March* are boldly springing to the surface of the ground. As soon as I perceived the leaves and flower-buds come above ground, I examined my written pocket index of roots, and the method of planting them by the names of the different roots, I then affixed labels of wood, with painted numbers on them as marked in the index, such as, No. 1. to *Morgen* star double white, and No. 2. to *Passetoute* double blue hyacinths, and so on through the whole bed, so as one cannot be mistaken to lay those roots distinctly in their respective repositories in the root-room at lifting season, when their flowers are decayed, and some of their leaves gone. This I notice here, for the benefit of a curious florist, or nursery-man in flowers, for his exactness, and which was always my practice. You must also put some covers over these flowers when they are in bloom, and even before they blossom, to preserve their flower-buds before they open, from frost, snow, hail, or much rain. The *Dutch* plant their best hyacinths in frames made of wood, in shape and form like these frames under which early cucumbers are raised, and have wooden covers for them in winter, and lift these higher up when their flowers are in bloom. And with submission to these eminent florists, I would never advise such covers; for by this method of covering these flowers, they are drawn up and choaked, which ends in the ruin of their roots, as I have often seen, and sometimes experienced.

The best cover for hyacinths when they are in bloom, is painted cloth or matts, sustained by arched hoops, which may be fixed on frames upheld by stakes of timber two feet high, drove into the ground of the alleys of the beds where they are planted: These  
may

may be lifted wholly off; or if the frames continue on the beds, the mats or cloth may be so contrived as to take off at pleasure, to give all air in mild weather, which will preserve the flowers and their roots in good health.

When the stalks of the flowers spire up, I tied them first gently below the bells to iron wires, made on purpose as I before observed; and when the bells separate, open, and prepare for flowering, I tied a piece of bass mat gently betwixt the bells, to sustain their stems and flowers to the wires, which make a very handsome appearance; and when their flowers were quite faded, I gathered up their long leaves and stems and tied them to the iron wires, but so easily as not to break them, or to incommode or hinder them from growing long, which then they do; this is only to save them from breaking, bruising, or wind-waving; and five or six weeks after they have done blowing, and their green leaves are turning yellow four or five inches below their tops, I lifted them carefully out of the ground; and immediately cutting off their leaves and stems close to their bulbs, I laid them directly with their respective labels in their apartments in boxes in the root-room, to dry by the air and wind, but not by the rays of the sun, observing to take none of their fibres off, but to allow them to wither; for they never take any rotting from their fibres, but from their broken or bruised leaves and stems that are left at the roots, by the injudicious practice of some persons, of which I must take notice.

They advise to lift them at the same time I prescribe for that operation, but then they order these roots, with their leaves and stems remaining at them, to be laid on their sides into a sharp ridge of the ground wherein they were planted, aye and until these stems and leaves are withered, and the roots (as they say) are ripened. I must say, I have in many cases, and in many seasons, found this practice to be very wrong; for when these roots are taken up, and laid upon their sides, with their leaves and stems hanging at them to  
ripen

ripen (as they term it) these may thereby wither indeed ; but before they are dry, it is very probable, that some putrefaction, descending from the dying green leaves and stem, affects the bulb, notwithstanding all your care to prevent it. Besides, if these roots, which, when thus laid on their sides, are very thinly covered with earth, and are not preserved from heavy showers of rain, but may be exposed immediately after to a hot sun, which heats the earth in which they lie, the bulb by the hot rays of the sun will be boiled in a manner, and will be liable to rot. It is certain, that the rotting of those bulbs proceeds oftner from their decaying leaves and flower-stems, than from the fibres of the bulb ; therefore it is safer to take away the cause of this rotting, and the effect will cease, by cutting off these leaves, and decaying flower-stems ; afterwards you may either ripen the roots, by laying them upon the top of the beds wherein they blossomed, covering them with a little dry sand, and shading the roots in the hottest sunshine, with mats betwixt them and the sun, not laid on the earth, but hung as parasols or sunshades, by which means, the roots thus laid have free air at all times ; or at lifting season, you may lay the roots in the root-room in their respective drawers, to dry there by the air and wind, but not in the rays of the sun.

Either of these methods you may follow. The nursery-men are for ripening their roots in the earth, as it gives the outward coats or skins of the roots a harder substance, so as they may pack better to go abroad ; whilst some curious florists follow the other method with the same success. This last method I choose to practise with my finest hyacinths. Most people who receive hyacinths from *Holland* complaining that they degenerate, and do not flower well with them a year or two after they receive them, it becomes me to shew them, that, provided they observe strictly a few rules, their hyacinths will blossom for many years, as well as they do in *Holland* ; and that, without a strict observation of these rules, it cannot be expected. And,

1<sup>mo</sup>, It

1<sup>mo</sup>, It is certain, that most part of our soils in *Britain* have more or less clay in them, excepting the pure white sand, or dark grey sandy earth, which is found near the sea, or upon grounds where short tufty heath grows. These soils are most proper for hyacinths; and I always took three parts of old well rotted cows-dung, one of pure white sand, together with one part of this dark coloured sandy earth, and of well rotted and fine sifted tan, one part, and I found in this soil only that they will prosper; for if there is clay in the ground wherein they are planted, their roots turn into a dull, skinny, unactive bulb, and instead of fifty, have not five fibres they should emit to furnish a large bold flower.

2<sup>do</sup>, Hyacinth roots should never be planted in any part of a garden, where water stands in winter, either above or below ground.

3<sup>tio</sup>, You must use no dung in your compost, but that of cows, and it must be very well rotted, and two or three years old; or for want of this dung, old rotted tan-bark, or rotted leaves of trees will do.

4<sup>to</sup>, You must not use for this compost, that earth wherein hyacinths have been often planted, without other crops, nor suffer those roots to continue in the ground two years, for they must be lifted every year.

5<sup>to</sup>, Do not plant good and sound hyacinth roots in the same bed, or near to roots which you see are not sound, or unseemly in their appearance; for such roots will infect wholesome ones.

6<sup>to</sup>, Be sure to sow hyacinth seeds every year, for thereby you may raise, as I did, many different sorts of those flowers, as good, and more to be depended upon, than such as we get from *Holland*.

7<sup>mo</sup>, If you do not sow the seeds, and want to encrease some of the prettiest sorts of them, or that the roots are slow in putting forth off-sets, (which is often the case with many of their best sorts) you are to use the following method to obtain off-sets from them, and which are more to be depended upon for their flowering handsomely, than the roots you get from *Holland*;  
the

the method is thus: A fortnight or three weeks after they are past their bloom, take such roots as you chuse to have off-sets from, out of the ground, cut off their long leaves and flower stems, but do not take off their fibres; and just above the circle from whence spring these fibres, cut the bulb cross-ways in four quarters a third part into its substance, but so as not to touch its innermost coats or its heart, then wiping it with a cloth, put it into the ground again, and cover it with no more than one inch of earth; lift this root again in three or four weeks afterwards, lay it into the root-room with the others, and at the usual season replant it with the other roots. This root will not bear a flower the ensuing season, but in place thereof, will, at lifting season, give you six, eight, or ten large off-sets, which, as they are bred (I may say) in our soil or climate, are much more to be depended upon for blossoming well, and for continuing to do so, than any roots we get from *Holland*. Nor is there any fear of their roots degenerating, provided they are lifted out of the ground every year, and that the new soil here prescribed is given to them annually when they are replanted, together with the other directions here prescribed for their culture: And as I have repeated experience, I affirm it, that I have had the same roots blossoming fair with me for six years together, and would have continued to have blossomed some years longer, if the roots had not expended their strength by off-setting. I have observed often a very certain sign, whereby you may know that your hyacinth roots are quite ready to be lifted out of the ground; it is this: Take the ground off them until you come at the tops of their bulbs; and if their leaves and flower-stems are healthy, and appear smaller at the bulb than they are above ground, delay not to lift them; for then it is certain, the ensuing year's flower and leaves are fully formed in the bulb; and if you allow them to continue longer in the ground, they may possibly rot. You may lift some of the finest flowers without taking off their leaves from their bulbs; it is thus: Lay them on their sides, cover the

the bulb with dry sand, pegg down the long leaves and the flower-stem to hinder it from wind-waving, there let the roots lie until the green leaves and fibres are dry. You may continue them two years in the ground without lifting, if the ground be very rich and strong at first; but this method is dangerous, many of the roots being apt to rot thereby.

I shall now proceed to give a catalogue of early doubles, second blowing doubles, and the latest flowering double hyacinths in Mynheers *Voerbelms* and *Van Zompell's* catalogues, florists at *Haerlem*, and in the same manner I shall class their single hyacinths; and of all these sorts I shall take their best good standard flowers, without regarding what are new, or what are high-priced. What induces me to do this, is, that when a florist or a gentleman designs to plant beds of single or of double hyacinths, he may plant his flowers uniform, according to the seasons of their flowering, early blowers by themselves, second blowers together, and late blowers in the same order, that his bed be not patched with flowers blowing here and there, an early with a late, and so on, in a confused manner, without any order, where the greatest order and symmetry of bloom should be, which is only obtained by classing these flowers according to their different times of blowing: This I thought quite necessary to inform my readers of, that regularity in these matters, as to times and seasons, may be the certain rules of their practice, which will tend to their perfecting their designs. Nor do I think it worth a florist's time, pain, and expence, in this country, to sow seeds of all sorts of flowers; if he sows hyacinth seeds, auricula seeds, and ranunculus seeds, for a trial, together with the polyanthos primrose seeds, christmas rose seeds, and winter aconite seeds, and hepatica seeds, with some others, to obtain double sorts of flowers, where they have not as yet appeared, he does very well. He may also do more, if it  
suits

suits his conveniency and taste ; I mean not to confine him.¶

*Hyacinths double white and red, early Bowers.*

Morgen Star	* Rose Illustre
Belle blanche Incarnaate	* Jewell van Europa
* Prince Frederic van	Constantia
Baden Durlach	* Rose triumphe van Flo-
Paerle Croon	ra
Coraline	Belle Pomona white
* Pilius Cardinaleum	Virgo white
Gloria Florumalba	White Pyramide
* Rubro Royale	* Roodenhaen
* Rosencrans van Flora	Koningin Esther
Rubre Cæsar	

*Hyacinths double blues, early blowers.*

Passetoute	Rex Florum
Croon van Braband	Demus
* Bonte Sanspareille	Citheris
Landgraaf van Soutzem-	* La plus belle du mode
berg	* Grande Violette
* Conseilleur Burklin	Perseus
* Directeur General	* Violette Croon
* Gloria florum blauwe	* Semper Augustus
	Carolus

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¶ The Florists in *Holland* have a method of putting, or of fixing the flower leaves of their hyacinths, and other flowers, upon paper, which keep their colours for many years. No florist should want them; and you may have them very neatly from the *Voerbelms* and *Van Zompell*, florists at *Haerlem*:—This method of preserving all the different flowers, every florist ought to be in possession of. The most curious I have marked with an asterism in the catalogue.

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Carolus Magnus  
Olympia  
Polycrates  
Incomparable  
Madame Royale  
Keyfer Tiberius

Baillieu van Amstellant  
Souveraigne  
Gekroonde Vryheid  
Louis Quinze triumphan-  
te.

*Hyacinths double whites and red, second blowers.*

Pallas  
Saturnus  
\* Feu d'Amour  
\* Optimus  
\* Koning van Groote Bri-  
tannien  
Kroon van Groote Britan-  
nien  
\* Gloria Hollandiæ  
\* Gloria Rubrorum  
\* Gloria mundi Rubrûm  
Controlleur General  
\* Couleur de Feu  
Admiral van Hollande  
Rose superbissima  
Koningin van Hongariën  
Baron van Wassenauer  
La Magnifique  
Witte non plus ultra  
\* Berg Vesuvius  
Vogel Stuys  
\* Reviseur General  
\* Rose de Parade  
Koning David  
Lucella  
Valeria  
\* La Beauté Incomparable

La Jove d'Hollande  
General Veltugmeester  
\* Monarque du Monde  
\* Pontifex Romanus Red  
\* Praal Cierate White  
Praxinoë  
Griffioën  
\* Purpre Rose  
Rose blanche et Violette  
Rose en douceur  
\* Rose d'Hollande  
Rose Sacré  
Rose Incomparable  
Koningclite Rose  
Kroon Vogell  
Staaten General  
\* Soleil brillante  
Kerk Croon  
Koningin Alexandra  
Amatiste  
Amintas  
Amelia Sophia  
\* Luystre van Flora  
\* Illustre Beauté  
\* GLORIA FLORUM  
SUPREMA.

*Hyacinths*

*Hyacinths double blues, second blowers.*

* Pontifex Romanus blue	Procureur General
* Gloria Mundi blue	* Brunette aimable
* Purpre Sanspareille	Gekroonde Leuw
Keyserine Aspasia	Gekroonde Fontaine
* Illustre d'Hollande	Antigonus
Vleigende Vogell	* Francois Premiere
* Grooten Sultan	* Aspasia panachè
Victor Amadeus	* Pluto
* Tros-blom	* Sanspareille panachè
Grand tresorier de Bre-	Duc de Luxemburg
tagne	Triumphe du Monde
Rex Negros	* Flora perfecta
* Koning der Mooren	Keyser Amurath
* Passe non plus ultra	Prins Noble
Gekroonde Saphire	Kroon Imperiale
Gekroonde Staarbeelde	Praal Cieraate Blew
Baillieu van Brederode	Konings Croon
Koningin van Vrankryk	* Grandeur Triumphan-
Pronk Jewell van Flo-	te
ra.	Prins van Birkenfelt
* Archidamus purpre	Graave van Buuren
Parmenio	Duc de Kanmerland
Metellus	Passe la grand belle pana-
Leonidas	chè.

*Hyacinths double red and white, late blowers.*

* Jonquille mignon yel-	Griffiere van de Staaten
low	General.
Purpre blanche	Colossus
* Assemblage de Beautés	* Palais van Juno
Vrendenryk	* Flos Solis
* Koning Solomon	Juno
Rider Catz	* Gulde Zon
* Topaz	Koningin Jocasta
* Tempel Solomons	Jewell

S

Roy

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Roy de Peru	Jeuwell van Alfema
* Toog van Flora	La Grand Rose Royale
Agamemnon	Dendropedios

*Hyacinths double blues, Late Blowers.*

* Rien ne me surpasse	* Grand Mogoll
* Cedo nulli	Zegen Zuyll
Purpre Jeuwell	Zegen Praall
Cid	Rex Indorum
Czaarine	* Tresorier General
* Overwinnar	Virgo blue
Hertog van Courland	Miltiades
Koning Minos	Merveille du Monde

*Early Hyacinths single blue.*

Avant Coureur	Aimable boit
Dutcheffe d'Orleans	Maculato store
Grooten Sultan	Koning's Kroon
Kroon Van Braband	Leopoldus
Cincinnatus	Duc de Weymar
* Passa Cato	Gallas
Passa Cretal	* Niger.

*Second blowing single blue Hyacinths.*

Aglaurus	Mirabelle
Bassa Van Cairo	Papirius
Emilius	Ganymedes
Gekroond Moer	Gekroonde Vreede
Gratianus	Grand Visier
Gravine	Grisdeline Royale
Herderin	Hegisippus
Keyser van Java	Ixion
Pastor fido	Keyfer
Proserpina	Keyfer Constantin
Rex Indiarum	Lyra
Admiral de Ruyter	Porceleine Royale
Agreeable	Premiere Noble

Aletis

Aletis	Sylla
Alexis	Trebifonde
Atlas	Centaurus
Belle Clara	Claremonde blauwe en
Bifard Agaet	Witte
Blandina	Crocodil
* Botenhelt blauwe en	Cretal
Witte	Dedalus
Koning van Poolen	Treforiere
* La Courronne Trium-	Triton
phante	Triumphante
* Comble du Gloire	Turksen Standart
Menelaus	Varro.
Mignon	

*Latest Blowers single blue Hyacinths.*

Dolphin	Koningin Anna
General Grovensteine	Cerealis
* L'Azuur Kroon	Semper Augustus
Morinete	Thalus
Golconda	Porcelaine Kroon.

*Early blowing single white and rose-coloured Hyacinths.*

Koning David	Galathea
Aula	* Koningclite Parel
Olyphant	* La Tendresse
* Premiere Noble	* Rose Princeffe.
Trompeter	

*Second blowing single white and rose-coloured Hyacinths.*

* Tuberosiana	* William Friso
Eleanora	Witte Valk
Gekroonde Liefde	* Alexandra
Incomparable	Casseopeia
* Rose Naturelle	Clarinde
Mariamne	Cleopatra
Pironella	Mynheer Justice

Clito	Phyllis
* Roode Keyserine	Princesse d'Orange
Four Ardent	Prokris
Gekroonde Rosencrans	Rakima
Lesbia	Rodonica
Lucretia	Rosaline
Orange Vlies	Rosemonde
Reine d'Espagne	Rasenhoff.

*Lateſt blowing ſingle white and roſe-coloured Hyacinths.*

* La Reine de Femmes	* Koraal Tak
Reine de Portugal	Princesse d'Orange
Antonius	Rose Charmante
Aurora	Rose Migniarde
Hermaphrodite	Paſſa Keyſers Croon
Rubans d'Or	Soleile du Monde.

I ſhall likewiſe here ſet down the ſorts of early and late blowing oriental narcissus, that the early and late blowers may be planted by themſelves, and that thereby their beds may not be patched by early and late flowers being planted promiſcuouſly in one bed, or one row or range of a bed.

*Early blowing Oriental or Tros Narciffus.*

Primo Geel	Charmante Nyt
* Soleil d'Or	Fonteine
* Baſſelman Major	Gouden Beer
Belle Ligeoiſe	Gouden Sceptre
Belle Oroe	Grand Etandart
Grooten Czar	Medioluteo triumphante
Hertogin	Polymneſtor
Bellei Idoor	Medioluteo Royale
* Medioluteo Calice plene	Baſſelman Jeune
Major	* Paſſe Baſſelman.
Califfthenes	

*Late*

*Late blowing Oriental Narcissus.*

Witte Vreede	La Syrenne
Witte Duiff	Koning van Sweeden
Witte Nonpareille	Koningin van Sweeden
Tassete Minor	* Grande Citroniere
Tassete Major	Aulus
Triumphe de l'Empire	Imperator
Suprema	Imperatrice
Souvereigne	* Sulpher Kroon
Primo Citroniere	Reine d'Angleterre
Pretiosa	Czaar.
Luna	

Having thus gone through the method I proposed, of the double and single hyacinths, and the oriental narcissus, whereby I would chuse to have them planted, more especially when they are to be planted in beds for show, either in the flower-gardens of a florist for profit, or of a gentleman for his pleasure; I shall proceed to show a method invented within these few years, whereby persons, who are fond of flowers, may have hyacinths and oriental narcissus blow in their chambers in winter, when, by the rigour of the season, there are no flowers in the open ground, to gratify our passion for Flora's productions. Having provided yourself with some of the best early, single and double hyacinth and oriental narcissus roots, put them into glasses which are now made in plenty for that purpose, and which are sold in most of the seed-merchant shops here; fill the glass with fresh clear soft spring water up to within a quarter of an inch of the bulbs or oignons of the flowers, and in fourteen days afterwards you will perceive these bulbs sending down their fibres into the water, which you should renew once every four weeks, and once every week, whenever you perceive these flowers preparing for bloom, by sending up their flower-stems from amongst their leaves. So soon as their flowers are faded entirely, take their roots out of the glasses, and plant

them into good, rich, light, fresh earth, covering the bulb with four inches of this earth, spreading out their long fibres, and tie their long stems and leaves up to reeds or wires; and when these are faded, smooth over the bed again, but do not lift these roots out of the ground for that season; cover them well with rotted tan in the winter, and manage them in the spring as you do the other roots; but if, in the spring, after they have been in the water-glasses, you observe the flower-stems of any of these roots to be very small, nip them off before they expand their blossoms, that their roots may not be wasted in showing a small flower, whereby they will be strengthened for blowing the succeeding spring: The best sorts for water-glasses are the earliest both of single and double hyacinths.

*All the early single-white and Blues, double Whites, viz.*

Morgen Staar	Koning van Groote Bri-
Prins Frederic van Baden	tain
Durlach	Comptroller General.
Coralline	

*Double Blues.*

Kroon van Brabant	Souveraigne
Agaet Mignon	Landgraaf van Soutzem-
Passetoute	berg.

These doubles blow best in water, as does the oriental narcissus, such as the soleil d'or, basselman major, and passe basselman.

There are many persons who complain, that, notwithstanding they have followed the directions given for preparing of ground to plant their hyacinths into, they do not flower well with them; and that, although their roots are large, they give them small flowers, and that they lose their roots very often by rottenness.

To which complaints I give the following answers,  
1<sup>mo</sup>— The surest method to know if the soil wherein you plant

plant hyacinths be agreeable to them, is, when the roots come to you, and before you plant them, weigh them in small scales, and mark down their respective weights in your pocket-book; the year following, when you have taken them up, and that they have been five or six weeks out of the ground, and are dry, and as well saved as they were the former year when they came from *Holland*, weigh them again, and if they are lighter, it is a sure sign your ground has been too poor for them; if their roots are increased in size, and they are lighter notwithstanding, then it is certain, that the dung you have employed for them, has been too soon set to work, that is, before it has been rotten enough, or, which is more probable, that this dung has been too hot, and has been horses instead of cows dung; and this being mixed with sand, the roots have had too many hot materials applied to them, and have had too little nourishment in this soil; for the reason why cows rather than horses dung is prescribed for their compost, is, that there may be a good medium of hot nourishment from the sand, and of cool nourishment given to these roots from the cows dung. Nor is it a paradox to see these roots become large, and at the same time become lighter, by a bad preparation of the soil you give them; for in a good soil, they are full of active juices, and are always in a state of action, although they may be out of the ground, and of consequence are heavy; when, on the contrary, in a hot soil, wherein they cannot draw due nourishment, they become a dull unactive body, of a dry, lumpish, skinny substance, and have not, nor cannot have a good, large, succulent juicy flower and stem, or perhaps any flower at all.

And, 2<sup>do</sup>. To this must be attributed their rotting; for it is certain, when their juices do not flow regularly, or are not in due proportion to their bulbs, they are badly digested; must stagnate, and cannot maintain their coats or skins; so that certain rottenness must ensue.

3<sup>do</sup>. I have often observed at lifting, that their roots are very much deformed, seemingly bursting at one side, and sometimes at the bottoms of the bulb itself: This is a

sure sign, that their fibres have been cramped in going down into the soil by clay or stones, or that they have perished by wet standing about their bulbs in winter, or that for want of covering in winter, their fibres have perished by cold and frost. Or, *lastly*, if they have been planted in a too hot soil, they have not been lifted at a proper season.

To remedy all which, let your composts be rotting for two years, and be incorporated for one year at least before you use it; let there be no clay nor coherent stiff stuff in it, but let it be rich, fresh, soft, and very spongy, so as to allow all the fibres of these bulbs to play at pleasure, for upon the number of them depends your success; cover their beds with old tan in the alleys, and pease haulm a-top in winter, and it will be beyond the power of frosts to harm them. And, *lastly*, lift those bulbs out of the ground five or six weeks at least, after their flowers are quite faded, ripening and managing them, as I have formerly directed under the article of hyacinths: and I am sure, from long experience, if a strict attention is given to these directions, and to what I have formerly wrote upon this subject, your wishes will meet with their desired success, especially if these roots have fresh compost given them every year.

With respect to lifting these roots, nothing is more certain, than that if they are planted in very rich ground, they must be sooner lifted, than if they are planted in a poor soil; that is, five weeks at most after their flowers are faded, otherwise the richness of the soil would overseed their roots, and rot them by a super-abundance of nourishment, which the root could not digest. On the other hand, when they are too soon lifted, the growth of the roots is stopt, and they will produce but a weak flower. As to ripening them in the ground, by laying the roots upon their sides, either with or without their leaves left at their bulbs, is a method the *Dutch* have found out, whereby the outward coats of their bulbs become hard, and of consequence endure being packed up in boxes better, and wherein

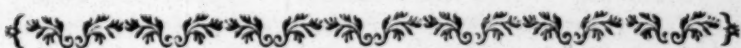
wherein the bulbs, being quite excluded from all air, and thereby made hardy, are not so subject to rot; but this will never make their flowers better or worse: The drying them in root-rooms does as well for those roots which are kept in *Holland* for increase; and this last method I would advise gentlemen, but not nursery-men who pack their roots in boxes for sale, to follow.

One material circumstance in planting hyacinths, I cannot omit taking notice of, and it is this: All the earliest sorts may be planted four or five inches deep in the ground; but I would incline, that the late blowers should have no more than two inches and an half of earth above them: My reasons for this caution are, that the latest blowers are longer in striking their fibres into the earth than the early sorts, and by too much earth above them, it is a great chance if they strike root at all; more especially as the beds are covered in winter with tan or straw above the earth, to preserve them from frost. And *lastly*, if they have much earth above them, it retards them too long in the spring from blowing; whereas, when these late sorts are shallow planted, they flower almost as soon as the second blowers, which is of singular use to their roots at lifting season; for if they are late in flowering, it retards the roots too long from being lifted, which is of great disadvantage to these roots, and is very often the cause of their rotting, or of their degenerating; all which ought to be avoided as much as possible. Besides, when the roots are planted two or three inches deep only, their off-sets will be more numerous, and every way better than they would be if they are deep planted.

Let me here add two flowers, that are much esteemed in the *London* gardens, the first of which is called the *Reseda Ægyptiaca minor floribus odoratissimis*, or yellow flowering *Ægyptian* bastard rocket, with most sweet smelling flowers. This is an annual, and must be sown in *March* upon a hot-bed, and when the plants have acquired strength, should be put upon another hot-bed, to bring them on, and may then be potted, and placed in rooms, to perfume them with their fragrant odours (of  
the

the smell of a ripe raspberry, with which they fill the places where their pots are set); or they may be planted into warm borders, where they will seed well; and if you have a moderate stove, they will there flower all winter, and seed well. This plant is named in the *Dutch* catalogues of flower seeds, by the unintelligible name of *Gingabo*, for what reason I am at a loss to say; but, in *London*, it is named the *Mignon*, or *Minionette d'Egypte*. The other flower is the *Rapuntium flore maximo coccineo spicato*, or red cardinal's flower: There is also a blue-flowered sort of this plant, but the red-flowered is preferable, as it excells all other flowers I ever knew, in the richness of its colour. When you have procured seeds, sow them in pots filled with undunged, light, fresh virgin earth, and cover the seeds very lightly, so as they may only be covered; and if it is cold weather, put bell-glasses over them, suffering them to have sun until eleven in the forenoon only, watering them gently; after they have come up, and are growing a-pace, transplant the young plants each into a single pot, where they may continue until *March* following, when you must give them larger pots, filled with the same earth into which they were sown, keeping them in the green-house until *May* or *June*. When they begin to blossom, you may set some of them into chambers with tuberoses, and the former mentioned *Refeda* or bastard rocket, where they will make a most handsome appearance; the blue-flowered will ripen its seeds, if the long stems are tied up, and are not suffered to fall or break by winds; which seeds I sowed in pots as soon as they were ripe, and put them into the green-house, or into an airy glass-case, to screen them from frost, and they came above ground early the next spring. You may also encrease them by dividing their roots; which work should be performed in *March*, but at no other season. When the plants are growing, and when they are in flower, they must have plenty of air and water; but you must give them little water in winter, when they are in an unactive state. The *Russchiana flore carulea* prospers well with the same culture; it is  
a fine

a fine flower, and should not be wanted in curious gardens.



*Polyanthos Narcissus.*

THE next beauty which appears in the spring, is the *Polyanthos Narcissus*, of which there are many sorts in the mynheers *Dirk Voerbels* catalogues, as also in the mynheer *Voerbels* and *Van Zompel's* catalogues. I shall confine myself to the culture of their old roots and off-sets only ; for this reason, that there are so few to be had in this country, by raising them from seeds, and their blossoming in that method is so tedious, that it is not worth the trouble, pains, and expences of a nursery-man to raise them from seeds ; this I am persuaded will be a sufficient apology, why I think it needless to treat of the culture of their seedlings.

Having provided yourself with a sufficient quantity of good roots, and having marked out a bed in a well defended situation of your garden, where they may be free from great winds, the earth which formerly served the hyacinths-bed for one year, with a third part more of very old and well rotted tan, will serve them ; but take out the common soil of the garden-ground three feet and one half below the surface of the earth, filling it up with the hyacinth compost, and old rotted tan, without any mixture of earth (a good quantity whereof must be laid within six inches of the bottoms of these bulbs) within two inches of the surface of the earth ; then taking the roots, plant them at four inches distance, root from root, and four inches deep into the compost ; and when the frosts set in for good, lay four inches of rotten tan above all, to keep the frosts from them, which, in *March* you may take off, observing never to plant them sooner than the first of *October* ; for if they are earlier put into the ground, they are apt to spring in *January*, when the frosts are very severe ; for being the most tender of all bulbs which are planted in

in the open ground, they are thereby very subject to be frosted in their tops, which, to my experience and expence, has rotted the roots of all oftner than once: Besides, they must have a free rich soil to send out their fibres on all sides of their bulbs, and no clay, otherwise they will never blossom well here.

I observed when I was in *Holland*, that the *Dutch Florists* lifted them duly once every year, so soon as their leaves were quite faded; but they never allowed them to abide three years in the ground without lifting; for if they are not lifted, they do not lose all their fibres, which of consequence must make them spring very soon, and often too soon in the season. This is the practice in *Holland*; it is true, their off-sets will not be so numerous; but if you are for having many off-sets in a dry situation, and where they are well defended from the winds, they may, upon account of having many off-sets, be allowed to continue two years in the ground, but no longer; the autumnal sorts, and the *Belle Donna's* I always planted in pots, filled with the earth which had served my hyacinths for one year only; but of these I shall speak hereafter, when I shall publish the culture of the green-house and stove-plants, which I had under my care in my own gardens. Under this article I also chuse to treat of *Jonquills*, the doubles whereof, I would incline to plant in the same earth, (giving it an half more of fresh sandy loam) for if those roots are planted in a rich stiff soil, they will not flower, their roots become long, and at length perish entirely.

Of the *Polyanthos Narcissus*, I would chuse to have four of every sort in the *Voerbelms* catalogues, that I might soon have a great stock of them, some of which are charming flowers, such as the *Soleile d'Or*, the *Basselman major*, *Basselman jeaune*, or yellow, *Grooten Czaar*, *Tassette minor medio luteo, calice pleno major*, *Witte non pareille, pretiose*, and many other sorts.

Their off-sets require no other culture than the mother roots, but they may be allowed to continue two years in their prescribed soil, until they acquire strength  
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to blossom, but no longer ; observing to give them in winter, when the frosts set in, a covering of four inches of old well rotted tanners bark, or, for want of that a good covering of straw, or pease haulm ; so soon as they are of the proper size to blossom, you may plant them with the large roots. I never lift them until their leaves are quite faded, and then lay them in their proper places in the root-room, to dry with the wind, until the beginning of *October*, when I replant them. I have said, that when Jonquills were planted in rich stiff ground, their roots run long, and they did not flower, so I found by experience ; to prevent which, I used the following method, and had very good success ; I took the earth before-mentioned, adding thereto an half of light, fresh, sandy soil for them, and made out a bed for themselves. I took away all the earth to the depth of twenty-two inches below the surface of the path-way, filling up the same at the bottom with gravelly earth and lime rubbish, beating the same hard with a spade five inches deep, above which I laid my earth, and planted my roots three inches deep in the same ; by which means the water in the bottom of the trench, if there was any, was drained off, and the long fibres of the jonquills were stopt from running too far down, by which means the roots were round and strong, and blossomed very fair. I constantly observed to lift them once every two years, or sometimes every year, just as I observed them to flower strong or not. After I had planted them three inches deep in the compost, I laid over the roots two inches of good garden mould, and some rotted tan or straw in very severe frosts ; but I used the tan only as a cover to some flowers, and no otherwise, it being hurtful to them when mixed with the earth wherein they grow, especially to ranunculus ; but polyanthos narcissuses agree well with it, if it is very well rotted and reduced to mould, and also to lay within reach of the fibres of their bulbs, about six inches from their bottoms, allowing their fibres to run deep into this bark, provided it is old, very well rotted, and moulded.

*Auricula*

*Auricula Urſi*, or Bear's Ear.

THE next flower which attracts our attention, is the *Auricula Urſi*, or Bear's Ear, which for its incomparable variety, and its ever-green leaves, is extremely valuable. This flower was formerly the pride of the *Engliſh* gardeners and florists; that is, they had the greatest good fortune in raising the best seminal varieties, and that to such a degree of perfection, that I have known a single plant of a good new-raised seedling, fold for seventy guineas.

The *Dutch* florists, envious of the good fortune of the *Engliſh*, in raising so many fine varieties of this flower, sent to *England* and purchased their best flowers, from which they have raised many admirable varieties, which they value very high; but they divided their *Auriculas* into two sorts, *viz.* the *Ligeiſes Auriculas*, or self or plain coloured ones, many of which being much velveted and shaded, are very pretty, and the painted sorts which are like those raised in *England*, in which they succeeded well.

To give catalogues of these flowers which vary so much every year, and to each of which the *Engliſh* add the names of those persons who raised these flowers, would be an endless and needless task; I shall therefore content myself with giving my readers the characteristics, which the best judges attribute to a good *Auricula*.

A good *Auricula* must have a strong erect stem, short pedicles or foot-stalks, bright glowing well shaded colours in the selfs, and those of different colours (or painted ones) being well and distinctly marked, with round, florid, large eyes, together with well expanded bells, which must not croud upon one another, but must show themselves distinctly, with a handsome narrow funnel, inclosing well proportioned *Stamina*. Those qualities, when united, compose a fine *Auricula*, and when the plants are in full health and vigour, their large leaves add much to their other beauties: To obtain

tain all which, being the effect of careful culture, I proceed to give it in a hitherto-unattempted manner, and which, although repugnant to the rules given by our cultivators of *Auricular*, I shall here insert, as the only true method to procure a fine blow of *Auricular*, as I had this last spring 1762; which, to the sight of numbers of spectators, exceeded all the blows of *Auricular* ever seen in *Scotland*, *England*, or in *Europe*; which was also composed of the most capital flowers in *England* and *Holland*, and some very fine new seedlings of my own raising. To proceed to their culture in as distinct and orderly a manner as I can, shall now be my endeavours.

The soil in which these plants delight, is a free fresh loam, taken from under a turf, which for many years has not been ploughed or spaded, and is what we call virgin-earth, one half; the other half is thus made up: three parts of it must be old rotted three years old cows dung, and one fourth part sea-sand, or river-sand, but there must be no horse dung in it. You must not mix those heaps together, until a few days before you use it, for otherwise, when they are mixed for some time, they breed vermin and worms, which is very hurtful to the roots of *Auricular*. If you use fuller's earth to them, it must be done in the proportion only of an eighth part, and at no time but in the spring-dressing, for, if it is used in autumn, it is prejudicial; and even when it is used in spring, it must be well dissolved in warm water before used, and then use no sand, and be sure that the pots in which you plant your *Auricular*, retain no water, for nothing can be of worse consequence to your plants, for in such case they will rot past remedy.

The best time to get rooted *Auricular* off-sets from *Holland* or from *England*, is about the 12th of *August*; and indeed, if any gentleman thinks proper, I can furnish him with fresh well-rooted plants, from half a crown to five guineas value *per* plant, as good as can be got from *England* or *Holland*, with this advantage, that

\* that the plants suffer less, being already in this country, which is a very great advantage to the purchaser.

So soon as they arrive, you must take such of them as are in pots quite out, trim their roots, cut off all dead ones, shorten the long ones, wash them clean from their old earth, and take clean fresh pots, fill them half full or a little more, with the compost above prescribed, but no fuller's earth at this time; then cut a little off the extremity of the root of the plant, and if you observe, that it is white without any yellow or brown spots in it, the plant is sound, but if you see those spots, you must cut them off as far as they go, and when your plant is clean, make a little hill in the compost in the pot, thereon plant the *Auricula*, spread its fibres, put the pot in a vessel of water half way up its sides, and this water will go into the roots in the pot, which you will observe by the dry earth on the top spotting black, then take out the pot and plant, set it quite in the shade, and on the shelf of your stage (which shall be described afterwards) so as they may get no sun for one month at least, keeping them always moist about their fibres, but not wet. Your plant will strike new roots in a month, and then you must not give it much water, but rather allow it to get rain, though but moderately; and not in sudden dashes, and you must defend it from blasts of wind, and all stormy weather; but in moderate weather, it must have a free air, and especially soft showers, evening and morning dews, &c. But if you observe, that the plant leaves hang loose, cover them with pots or small hand-glasses, except in moderate showers, until these recover their strength, and that you observe them growing again. If these plants offer to flower in autumn, they may be allowed to run their stems up to their height, then nip them off immediately below their flower-buds; but this you must not do until you perceive a new heart rising by the side of their flower-stems, and suffer your plants to get no rain or water, but what you give them, for ten or fifteen days after this.

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In this shaded situation, and precisely under this management they must remain until the 20th of *October*, when these plants should, for the first year after you get them, be brought into your *Auricula* shade, which shall hereafter be described, and here they must be kept in the following manner.

Before I proceed, suffer me to give some few cautions: The first is, let not yourself be misled by writers upon floristry, for they do not understand what they write, as most of them have never practised what they were directed to do; and the others knew not how to direct your practice, having never done such things themselves. All with them is hearsay, and most of it mere fable, which either was not, or could not, with success be practised by any person.

Follow nature, she will shew you the method; and experience confirms her dictates: From them I had my advice, I followed them strictly, and I succeeded to my utmost wishes.

Your plants being now under your shade, you are to consider most attentively how you are to treat them there for the best purposes: You must still keep them in a growing state; and when frost (that bane to vegetation) spreads its dominion over our climate, you must endeavour to sustain your plants in that vegetation they had attained to, when they were put into the shade, in such proportion as the inclemency of the winter will permit; for here a due medium must be preserved, to continue the vigour they got before the winter, and not to diminish the same, nor to force the plants to grow in winter.

They must have water given them now from a small garden-can, with a spout to it like a tea-kettle, but no nosell upon it; you must draw the earth in the pots, quite up to the necks of the plants; for wet must not come near to them during the winter, otherwise the plants will rot. When you observe the surface of the pots dry, very probably there is no drought below. The best method to know if they are dry, is, to take the pot in your hand, and if it feels light, or the leaves

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of your plants droop and fall down, it is certain they are dry, and must have water. But if, at this time, it is frost, or that there is an appearance of frost coming on, give them no water till a thaw comes, and even then it must be given in small quantities at a time; for you are now only to maintain, but not promote their growing, besides, much water gives frost much power, which must be shunned at all times. In mild weather, they must have air given them, of which no opportunity should be neglected, for upon this depends the health of your plants; which may be done, whether they are in shades or in bunkers, by lifting the heads of the first, and taking the covers off the latter. It will also be proper that you look into the roots of your plants often by gently uncovering them. If they appear white and large, they are in good health; but if they are brown coloured and soft, they have certainly got too much water, whereby the frost has got power over their fibres, and has injured them; wherefore they must have little or no water during the remains of winter, and that in small quantities in mild weather only, or after great winds; and from the time you set your plants into the shades or bunkers, neglect no opportunity to give them the influence of the rays of the sun until the beginning of *March*, for these will refresh them exceedingly. By the end of *February*, in mild weather, you must give new earth to your *Auriculas*, by taking off the old from the surface of their pots, and from amongst their fibres, which, by no means, you must break or injure; and put into its place fresh new compost as I above described: and if your plants are weak, you may add to it the quantity proposed of fuller's earth, but if they are strong, you should forbear it: Then water the plants well, to settle the earth about them, shading them for two weeks after this; then take them all out of the shade, and put them into the bunkers until they blow each five or six of their pips, and then set your strong blowers into the shade, to blow fair, handsome and strong. By the first of *April*, you must remove your bunkers into the shade,  
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and thereon set on your plants until they blow out some of their pips, when they must be set into your shade; and whereas but one side of most of them are only open to the air, and that too opposite to the north, turn the pots about as often as you perceive their flower-stems bending to the airy side of the shade; and so soon as you perceive the flowers begin to do so, take the plants out of the shade, and set them upon the bunkers again. When your flowers are in blow, give them all air, but no sun or wind, and they must have good waterings twice a week, or oftner as you see occasion, picking off all dead or dying leaves.

You cannot get good seeds from those flowers that have blowed very strong in your shade; wherefore, these seeds which are most valuable to a curious florist, must be obtained in another manner, which is thus done:

In *February* or *March*, when you give new earth to your *Auriculas*, observe if they have well-rooted off-sets: If they have, take them off from their mother-plants, pot them, and place them in a very shady situation, but not under the drop of trees, nor places exposed to storms: And you may also take off-sets, from those that are well rooted from *February* until *May*: They will strike in three weeks; and by autumn, if well taken care of, will be stout plants.

In *October*, set them into the shade, or upon the bunkers, and manage them as I have directed for their mother-plants the preceding winter. In the *February* after, when you earth up the old plants, prepare a bed of fresh virgin-loam; but therein put no dung nor fuller's earth, which loam will be much the better to have it by you all the winter, turning it often to mould by the frost. Make this bed two feet deep, and three feet broad; raise it three inches above the path-way, and let it settle three weeks before planting; then take three dozen of your strongest off-sets, or even some of the mother-plants, if you should not have plenty of off-sets, take them out of the pots with their whole earth, make pits in your bed, and plant them therein

as deep as they were in their pots: Here they will flower, and give you much more and better seeds than your plants in pots. In this bed plant your *Auriculas*, eight inches asunder every way; and in dry weather, give some water in an evening. This bed must be in a well sheltered place in the garden, so as to have the sun from morning till eleven in the forenoon.

Your *Auricula* seeds will ripen in *July*, which you will know by their pods turning brown and bursting; then look over the plants every day, gather them as they ripen, and put them into small paper bags, hanging them in a window to get the sun for ten days to prevent moulding; but do not take the seeds out of their hulks until you sow them, which should be done the first week of *February* in virgin-earth, mixed with one third of rotten willow-wood, and some of the earth about these rotted willows, laying scarce a quarter of an inch of the said earth above these small seeds in large pots, which must be kept constantly in a shaded situation; nor must they, at any time, be permitted to see the least gleam of the sun's rays, for that would kill all the young plants which will shew themselves in *April* or *May*. Keeping them always moist, you may transplant them in *September* thereafter into pots, filled with the same compost in which they were sown. By the end of *October*, set the pots where they may have the sun's rays in winter, and about the first of *March*, set them into a free, open situation, but well shaded from storms.

When you transplant, or thin these plants, make smooth the surface of the earth in the seedling pots; for many of the young plants will come up the second year after sowing.

In *September*, re-pot all your plants into fresh earth, the old, the off-sets, and the seedlings, whereby you will never fail of a good succession of fine flowers: And never suffer more than two trusses of flowers to blow upon one plant, and very often but one truss. In two or three years, your seedling *Auriculas* will show  
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their beauties, when you will distinguish those that merit your care from those which deserve it not.

I erected two stages for my *Auriculars*, the first of which fronted northward, had a close wall to the south, but was open to the north; it rose two feet above the ground, which rising was made of bricks, like steps up; along this I raised seven shelves, rising five inches one above the other, not immediately but in a slope to the back-wall, with steps of timber in the middle and at both ends, that the gardener might more easily water, and handle the pots and plants upon occasion; this was quite covered with boards duly supported, in front ten feet, sloping to the wall three feet; which board-covering lifted up and down at pleasure; and when stormy weather or dashing rains blew from the north, I had matts or canvass stretched upon frames, to put up before the plants, to save them from wind and rain: Both the ends of this stage or shade were open rails.

The other stage was a long frame, made as we make shelves above shelves rising to the back, as the other shelves rose upon the stage with the north aspect, having five tire of shelves fronting east, with a holly hedge at a little distance from it, upon the west-side. The covers of this stage sloped from the highest shelf in the back, downwards to the lowest shelf. These covers were made of wooden boards, closely joined together, and lay on proper supporters, at proper distances, above the plants, so as not to injure the flower-stems, and were made to slide off and on at pleasure, and lay above the stage as a glass frame does over a hot-bed. This stage is called a bunker, which every good florist should have.

*Tulip.*

THE next plant, which attracts our attention in the spring is the *Tulip*.

These are divided into præcoces or earlies, and serotines, or late blowers, which are divided into baguets, bybloomens, which are a sort of baguets, and into bifsards.—The varieties of this flower are prodigious, and to give a catalogue of them would be needless, since every year produces new flowers.

I had the best kinds, and was surest of my sorts from Mynheers *Voerbelms* and *Van Zompell*, *Florists* at *Haerlem*, who always dealt very honestly with me; and notwithstanding the varieties of their sorts, they were always very distinct.

I bought from them a good quantity of the best præcox, or early blowing *Tulip*, which I planted in the same ground I had the year before blown my hyacinths in, stirring up the beds, and adding to them a fourth part more of fine well prepared white sand. I planted them three inches deep, that is, after I levelled the earth two inches below the surface of the path-way, I planted my roots therein (as I did my hyacinths the former year) at the distance of nine inches root from root, and used the same covers in the spring, as I used for my hyacinth; for if these *Tulips* which blow so early, and which shew their flower-buds by the first of *March*, are not covered with great care, they blight and their blossoms seldom come to any thing: For want of which covers and due care, they have been despised amongst the curious, as not being sure blowers; but I am certain that were covers and due care given them, they would (as they did always under this management with me) make a very pretty show. These early *Tulips* should be lifted three or four weeks sooner than the others, and should be laid up in their different boxes in the root-room. They should be replanted in the beginning

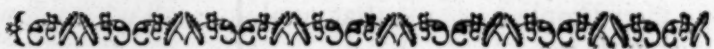
ginning of *September*; observing that where you plant them be a dry, rather than a moist place in your garden, and well sheltered from winds, which in the season of their bloom are very piercing and cold. The reason I plant *Tulips* a little deeper in the ground than I do hyacinths, is, because they have far longer stems, and their heads, before as well as when they are in bloom, are very heavy, whereby the wind takes great impression on them, so as to shake their roots, and also loosen their small fibres, which are far more tender and much shorter than those of the hyacinths or any other flower of their height. And it is also for this reason, that I begin to cover them, as soon as I observe their flower-buds to spring from amongst their leaves, to hinder the wind from taking an impression on them, so as to break their heads and stems, before they expand their blossoms, and thereby loosen their small short fibres, from any hold they have of the earth, which stops these fibres from sucking any more substance from the earth, for that spring, to perfect their bloom, or to give a good bulb for the ensuing year: For it is remarkable, that *Tulips* change their root every year, and those accidents of wind-waving, or breaking their long stalks by winds injures their roots very much.

All the serotines, or late blowers, I planted from the beginning to the middle of *October*, at latest, such as baguets, bybloomens and bisards.

And first of the baguets. I shall set down some of the best, old, and good standard flowers, in *Voerbels* catalogues, that my readers may be sure of them, even by their simple names in that catalogue, all which flowered with me.

*Baguets.*

* Arçesius	Amazona
Admiral General	Belle Africa
* Admiral Gulde Leuw	Bellona
Agricola	Bran-v-lag,
Aimable	Brunnette Royale
Alexander de Groot	Cabinet Royale
Conquette d'Houstrive	Narcissus
Conquette van Royen	Noord Star
Duc d'Argyll	Nova
Duc d'Chartrees,	* Seven Provincien
Duc de Luxemburgh	* No. 2. Oortman
Duchesse de Bourgogne	Parnassus
Generaal Tobb.	Prince van Baden-Dur-
* Graaf van Moorst	lach
Gratiosa	Semper Augustus,
Hippolytus	Sphæra mundi
Hoff van Holland	Tresoriere
* Hollandia	Triumph van Leyden
Koningin van Vrankryk	Vegt Jewell
* Kroon P. van Danemar-	* Jewell van Europe
ken	Veltheer
* La Magnifique	Vergulde Kam
La Noblesse	Whitte Leeuw
Leopoldus	Jewell van Flora
Merveille du Monde,	* Mount van Holland
Merveille d'Utrecht	Morrelly.

*Of Bybloomen Tulips.*

All these marked baguet rigauts are fine, large flowers, very strong, and some of them so large, that when they are in perfection of bloom, they will contain an *Englisch* pint of wine within their petals or flower-leaves. They are as follow :

*Baguet*

*Baguet Rigaut Tulips.*

* Baguet Rig. Bataille	d° Excellentissimo
d° Admiral	d° Bonaventure
d° Bellissimo	d° La Magnifique
Baguet Rigaut Cæsar	d° Le Roy
d° Electeur	d° L'Empereur
d° Frangebruy	* d° Rose Grandissima
d° Hercules	* Beauregard Akerkamp
d° Hector	Beauregard Admiral
d° Imperatrice	* Beauregard Merveil-
d° Elegantissimo	leuse.

These are dark coloured and very fine flowers.

*Bybloemen Tulips.*

Curius	Koning van Siam
Rex Indiarum	Koning van Pruiffen
Dame de France	L'Emminence
* Cupido	Erfstad houdereffe
La Rupelmonde	Cardinal Infant
* Grande Fidelle,	* Parroquet Rouge
Incomp. Brunon	Overwinnaar
Incomp. de Grauw	Porcia
* Grand Roy de France	Reine de Congo
* Hauteffe Rose	Reine de Guine
* Hauteffe Grisdeline	Rose Triumphe
Hauteffe Violette	* Rose Feu du Grand Va-
* Hertog van Lancafter	leur
Incomparable Arch - Du-	Stadhoulder General
chelle	Socrates Verheterde
* Incomp. Favourite	* Triumphe de Lifle,
Incomp. Premiere noble	d° N° I.
Incomp. Florida	Triumphe Grisdeline
Jeuweell van Dort	* Duc de Toscan,
Jeuweell van Hollande	* Reine d'Amazones
Jeuweell van Zeeland	Jeuweell van <i>Vaerbehn</i>
Keyferin van Java	Gagne la Rache.

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I never attempted to raise *Tulips* from seed ; not but that the experiment is very well worth one's pains to try, but I had really too much work otherwise upon hand ; and although I had sown them, I am sure I could not have done it in a better manner, than that which is prescribed by my worthy and ingenious friend, Mr. *Philip Miller*, gardener to the worshipful company of apothecaries, at the physic-garden at *Chelfea*, near *London*, in his *Gardener's Dictionary*, article *Tulip*, where one will also find very good rules for breaking of breeders, or breeding *Tulips*.\*

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\* *Our Author having so much recommended Mr. MILLER's Manner of propagating these Flowers, from the Seeds, &c. we shall for the Convenience and Advantage of our Readers, give here what that Gentleman has directed upon the Occasion.*

“ The manner of propagating these flowers from seeds is as follows : You should be careful in the choice of the seed, without which there can be little success expected, The best seed is that which is saved from breeders which have all the good properties of good flowers for the seeds of striped flowers seldom produce any thing that is valuable.

“ The best method to obtain good seeds is to make choice of a parcel of such breeding *Tulip* roots as you would save seeds from, and place them in a separate bed from the breeders, in a part of the garden where they may be fully exposed to the sun, observing to plant them at least nine inches deep ; for if they are planted too shallow, their stems are apt to decay before their seed is perfected.

“ These flowers should always be exposed to the weather, for if they are shaded with mats, or any other covering, it will prevent their perfecting the seed. About the middle of *July* (a little sooner or later, as the summer is hotter or colder) the seeds will be fit to  
gather

But least I should be blamed for omitting what Gardeners, or my other readers, may think material in the culture of *Tulips* raised from seeds, I shall here give them the method which I saw practised, and the culture and management which was given to these flowers, by *Francois Beulinz*, Florist near the *Chartreux* at *Brussels* in *Flanders*, who has raised many extraordinary fine *bisard Tulips* from seeds. His method is thus:

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gather, which may be known by the driness of their stalks, and the opening of the seed vessels, at which time it may be cut off, and preserved in the pods till the season for sowing it, being careful to put it up in a dry place, otherwise it will be subject to mould, which will render it good for little.

“ Having saved a parcel of good seed, about the beginning of *September* is the best season for sowing it, where there should be provided a parcel of shallow seed pans or boxes, which should have holes in their bottoms, to let the moisture pass off; these must be filled with fresh sandy earth, laying the surface very even, upon which the seeds should be sown as regularly as possible, that they may not lie upon each other; then there should be some of the same light sandy earth sifted over them about half an inch thick. These boxes or pans, should be placed where they may have the morning sun till eleven of the clock, in which situation they may remain until *October*, at which time they should be removed into a more open situation, where they may enjoy the benefit of the sun all the day, and be sheltered from the north winds, where they should remain during the winter season, but in the spring, when the plants are up, they should be again removed to their first situation; and if the season should be dry, they must be refreshed with water, while the plants remain green, but as soon as their tops begin to decay, there must be no more given them, lest it rot their

When the stems of these flowers appear to rise above their leaves, and to be preparing for bloom, they should be tied to long iron wires or small reeds, that they may be preserved from breaking by winds. These stems, as they advance in height, should have all opportunities of sun to ripen the seeds; which, so soon as they offer fair, encourage them by all means.

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their tender bulbs, therefore the boxes should be placed in a shady situation during the summer season, but not under the drip of trees.

“ These plants, at their first appearance, have very narrow grassy leaves, very like those of onions, and come up with bending heads, in the same manner as they do; so that persons, who are unacquainted with them, may pull them up instead of grass, whilst they are very young, before their leaves are a little more expanded, which is rarely performed the first year, for they seldom appear before the middle of *March*, and they commonly decay about the latter end of *May*, or the beginning of *June*, according as the season is hotter or colder.

“ The weeds and moss should also be cleared off from the surface of the earth in the boxes, and a little fresh earth sifted over them soon after their leaves decay, which will be of great service to the roots. These boxes should be constantly kept clear from weeds, which, if permitted to grow therein, when they are pulled up, their roots will be apt to draw the bulbs out of the ground. At *Michaelmas* they should be fresh earthed again, and as the winter comes on, they must be again removed into the sun as before, and treated in the same manner, until the leaves decay in the spring, when the bulbs should be carefully taken up, and planted in beds of fresh sandy earth, which should have tiles laid under them, to prevent the roots from shooting downward, which they often do when there is nothing to stop them, and thereby they are destroyed. The earth of these

The seeds will be ripe by the end of *June*; which you will know by the seed-vessels opening, and shewing the seeds; at which time cut off these vessels with their seeds, and laying them in a dry place, keep them until the middle of *September*; then sow them in the following manner, and in this kind of earth.

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these beds should be about five inches thick upon the tiles, which will be sufficient for nourishing these roots while they are young.

“ The distance, which these young bulbs should be allowed, need not be more than two inches, nor should they be planted above two inches deep; but toward the end of *October*, it will be proper to cover the beds over with a little fresh earth about an inch deep, which will preserve the roots from the frost, and prevent moss or weeds from growing over them; but, if the winter should be very severe, it will be proper to cover the bed either with mats or peas haulm to prevent the frost from entering the ground, because these roots are much tenderer while young, than they are after they have acquired strength.

“ In the spring the surface of the ground should be gently stirred, to make it clean, before the plants come up; and if the spring should prove dry, they must be frequently refreshed with water, during the time of their growth; but this must not be given to them in great quantities, lest it rot their tender bulbs; and when the leaves are decayed, the weeds should be taken off, and the beds covered with fresh earth; which should also be repeated again in autumn.

“ In these beds the bulbs may remain two years; during which time they must be constantly kept clear from weeds, and in the spring and autumn fresh earthed, in the manner already directed; after which the bulbs must be taken up, and planted into fresh beds, at four inches asunder, and as many deep, where they may remain two years more; during which time they should have the same

To one load of virgin-mould, take a quarter of a load of sea-sand very white, neither red nor yellow, nor of the finest sort, but of a coarse substance; or for want of it, some coarse free river sand: To this add, of very old and well rotted cows-dung, one half load; and the other quarter must be of a short, mossy, black earth. Mix and incorporate these, one year at least,

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same culture as before; and after that, the bulbs being large enough to blow, they should be taken up, and planted in fresh beds at the usual distance, and in the same manner as old roots; where, when they flower, such of them as are worthy to be preserved should be marked with sticks, and at the season for taking up the bulbs, they must be separated from the others, in order to be planted as breeders in different beds; but you should by no means throw out the rest until they have flowered two or three years, because it is impossible to judge exactly of their value in less time; for many, which at first flowering appear beautiful, will afterwards degenerate so as to be of little value, and others, which did not please at first, will many times improve; so that they should be preserved until their worth can be well judged of.

“ In this method many sorts of new breeders will be annually raised, from which there will always be fine flowers broken, which, being the produce of a person's own sowing, will be greatly valued, because they are not in other hands, which is what enhances the price of all flowers; and it has been entirely owing to this method of raising new flowers that the *Dutch* have been so famous, amongst whom the passion for fine *Tulips* did some time reign so violently, that many of the florists near *Haerlem* have often given a hundred ducats for one single root, which extravagance was the occasion of an order being made by the *States*, to limit the utmost price that should be afterwards given for any *Tulip* root, were it ever so fine.

“ Having

least, before you sow the seeds of tulips in it : Make boxes three feet long, two broad, and one foot deep ; and to the two sides of the boxes of all your seedlings, which have much earth in them, and cannot be easily lifted with the hand, put two large iron-cases or keepers, like to those that are in the sides of sedan-chairs ; that these boxes with the plants and the earth, may be carried

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“ Having thus given an account of the method of raising these flowers from seeds, I shall now proceed to the management of these roots which are termed breeders, so as to have some of them every year break out into fine stripes.

“ There are some who pretend to have a secret how to make any sort of breeders break into stripes whenever they please, but this, I dare say, is without foundation : for from many experiments which I and others have made of this kind, I never could find any certainty of this matter. All that can be done by art, is, to shift the roots every year into fresh earth of different mixtures and a different situation, by which method I have had very good success.

“ The earth of these beds should be every year different, for although it is generally agreed that lean hungry fresh earth doth hasten their breaking, and cause their stripes to be the finer, and more beautiful, yet, if they are every year planted in the same sort of soil, it will not have so much effect on them, as if they were one year planted in one sort of earth, and the next year in a very different one, as I have several times experienced ; and if some fine striped *Tulips* are planted in the same beds with the breeders intermixing them together, it will also cause the breeders to break the sooner.

“ The best compost for these roots is a third part of fresh earth from a good pasture, which should have the sward rotted with it ; a third part of sea sand, and the other part sifted lime rubbish ; these should be all mixed

carried from one place of the garden to another, without disturbing the earth, or the seedling plants in them, either to receive the influence of the sun, or at other times to be placed in a shady situation. I say, make those boxes of the depth, breadth, and length here proposed, boring many holes in their bottoms, which  
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mixed together six or eight months at least before it is used, and should be frequently turned in order to mix the parts well together. With this mixture the beds should be made about two feet deep, after the following manner: After the old earth is taken from out of the bed to the depth intended, then some of the fresh earth should be put in about eighteen inches thick; this should be levelled exactly, and then lines drawn each way of the bed, chequerwise; at six inches distance, upon the centre of each cross, should be placed the *Tulip* roots in an upright position, and after having finished the bed in this manner, the earth must be filled in, so as to raise the bed six or eight inches higher, observing, in doing this, not to displace any of the roots, and also to lay the top of the beds a little rounding, to throw off the water.

“ There are many persons who are so careless in planting their *Tulip* roots, as only to dig and level the beds well, and then with a blunt dibble to make holes, into which they put the roots, and then fill up the holes with a rake, but this is by no means a good method; for the dibble in making the holes, presses the earth closely on each side, and at the bottom, whereby the moisture is often detained so long about the roots as to rot them, especially if the soil is inclinable to bind; besides, the earth being hard at the bottom of the bulbs, they cannot so easily emit their fibres, which must certainly prejudice the roots.

“ These beds should be sunk, more or less, below the surface, according to the moisture or driness of the ground, for the roots should be so elevated as never to  
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must be covered with concave oyster-shells, to allow the moisture to go off by those holes. In those boxes, and in the compost prescribed, sow your *Tulip* seeds about the 26th of *September*. In the severest frosts, cover the surface of the earth in the boxes with tan, three

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have the water stand near the reach of their fibres in winter, for moisture is very apt to rot them; so that where the soil is very wet, it will be proper to lay some lime rubbish under the earth, in order to drain off the wet, and the beds should be entirely raised above the level of the ground; but to prevent their falling down into the walks, after frost, or hard rains, it will be proper to raise the paths between them, either with sea coal ashes or rubbish, eight or ten inches, which will support the earth of the beds; and these paths may slope at each end from the middle, which will make passage for the water to run off as it falls. But where the soil is dry, the beds may be sunk eighteen or twenty inches below the surface, for in such places the beds need not be more than four or six inches above the surface, which will be allowance enough for their settling.

“During the winter season there will be no farther care required. The roots, being planted thus deep, will be in no danger of suffering by ordinary frosts, but if the winter should prove very severe, some rotten tan or peas haulm may be laid over the beds to keep out the frost during this continuance, but this must be removed when the frost is over; and in the spring, when their leaves begin to appear above ground, the earth upon the surface of the beds should be stirred to clear it from weeds, moss, &c. and when the flower buds begin to come up, they should be guarded from frost, otherwise they are very subject to blight and decay soon after they appear, if the frost pinches their tops; but they need only be covered in such nights when there is a prospect of frost, for at all other times

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three inches thick, which in *March* remove with your hand, and put your boxes from their winter situation of a sunny exposure, into a more shaded situation in the spring and summer, watering them when their plant-leaves are above ground, as occasion shall require;

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they should have as much open air as possible, without which they will draw up weak, and produce very small flowers.

When these breeders are in flower, you should carefully examine them to see if any of them have broken into beautiful stripes, which, if you observe, there should be a stick put into the ground, by every such root, to mark them, that they may be separated from the breeders, to plant amongst the striped flowers the following year; but you should carefully observe, whether they have thrown off their former colour entirely, as also when they decay, to see if they continue beautiful to the last, and not appear smeared over with the original colour, in both which cases they are very subject to go back to their old colour the next year: But if their stripes are distinct and clear to the bottom, and continue so to the last (which is what the florists call dyeing well,) there is no great danger of their returning back again, as hath been by some confidently reported, for if one of these flowers is quite broken (as it is termed) it will never lose its stripes, though sometimes they will blow much fairer than at others, and the flowers of the off-sets will be often more beautiful than those of the old roots.

“ This alteration in the colour of these flowers may be seen long before they are blown, for all the green leaves of the plant will appear of a fainter colour, and seem to be striped with white, or of a brownish colour, which is a plain proof that the juices of the whole plant are altered, or, at least, the vessels through which the juice is strained; so that hereby particles of a different figure are capable of passing through them, which, when

quire ; but when these are faded, be moderate in your waterings ; for their roots, when in an unactive state, are not able to discharge so much moisture, as when they are in a growing condition. It will be proper you have folding wooden covers to these boxes.

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when entered into the petals of the flower, reflect the rays of light in a different manner, which occasions the variety we see in the colours of flowers. This breaking of the colours in flowers proceeds from weakness, or at least is the cause of weakness in plants ; for it is observable that after *Tulips* are broken into fine stripes, they never grow so tall as before, nor are the stems, leaves, or flowers, so large, and it is the same in all other variegated plants and flowers whatever, which are also much tenderer than they were before they were striped ; so that many sorts of exotic plants, which by accident became variegated in their leaves, are often rendered so tender, as not to be preserved without much care, though indeed the striping of *Tulips* doth never occasion so great weakness in them as to render them very tender. The greatest effect it hath on them, is in lessening their growth, causing some (which, while they continued in their original plain colours, did rise near three feet in height) to advance little more than two after their colours were altered ; and the more beautifully their stripes appear, the shorter will be their stems, and the weaker their flowers.

“ There is nothing more to be observed in the culture of striped flowers than what has been directed for breeders, excepting that these should be arched over with tall hoops and rails, that they may be shaded from the sun in the day time, and protected from strong winds, hard rains, and frosty mornings, otherwise the flowers will continue but a short time in beauty ; but where these instructions are duly followed, they may be

Here your young seedlings may continue for two or three years, observing to give them new mould every *August*, when their leaves are below the surface of the earth, the same as is prescribed, which will very much strengthen their young roots ; and at this time,  
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preserved in flower a full month, which is as long as most other flowers continue.

“ There are some persons, who are so extremely fond of these flowers, as to be at a great expence in erecting large frames of iron work to cover their beds of *Tulips*, in such a manner, that they may walk between two beds under the frames, over which are spread tarpawlins, so as to keep off sun, rain, and frost, whereby they can view the flowers without being at the trouble of taking off or turning up the tarpawlins, or being incommoded by the sun or rain, which cannot be avoided where the covering is low ; besides, by thus raising the covers, the flowers have a greater share of air, so that they are not drawn so weak, as they are when the covering is low and close to them, but these frames, being expensive, can only be made by persons of fortune ; however, there may be some of wood contrived at a smaller expence, which, being arched over with hoops, may answer the purpose as well as iron frames, though they are not so sightly or lasting.

“ But after the flowers are faded, the heads of all the fine sorts should be broken off to prevent their seeding ; for if this is not observed, they will not flower near so well the following year, nor will their stripes continue so perfect ; and this will also cause their stems to decay sooner than otherwise they would do, so that their roots may be taken up early in *June* ; for they should not remain in the ground after their leaves are decayed. In taking the roots out of the ground, you must be very careful not to bruise or cut them, which will endanger their rotting, and if possible, it should be done a day  
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it will be proper to carry their boxes into a situation, where they can have the sun until eleven in the forenoon only.

When you lift them, let their leaves be down and the earth be very dry; and riddling the earth in the boxes, so as not to leave any of the small roots of the seedlings in the earth, take them and lay them in the root-room, until the beginning of *October*; then replant them into larger boxes, and the same sort of earth wherein they were sown, taking care of them as you did the former years: They may remain in the  
boxes

or two after rain. When these roots are taken out of the ground, they must be cleared from their old covers, and all sorts of filth, and spread upon mats in a shady place to dry, after which they should be put up in a dry place, where vermin cannot get to them, observing to keep every sort separated, but they should not be kept too close from the air, nor suffered to lie in heaps together, lest they should grow mouldy, for if any of the roots once take the mould, they commonly rot, when they are planted again.

“The off-sets of these roots, which are not large enough to produce flowers the succeeding year, should be also put by themselves, keeping each sort distinct; these should be planted about a month earlier in autumn than the blowing roots, in particular beds by themselves in the flower nursery, where they may not be exposed to public view; but the earth of the beds should be prepared for them in the same manner as for larger roots, though these should not be planted above five inches deep, because they are not strong enough to push through so great covering of the earth as the old roots; they may be placed much nearer together than those which are to flower, and in one year most of them will become strong enough to flower, when they may be removed into the flower-garden, and placed in the beds amongst those of the same kinds.”

boxes two years more, but no longer, for now they may be planted into beds in the ground; and the most proper soil for them, is that wherein, the spring preceding, hyacinths have been planted. If any of them shows flowers this fifth year after sowing, they must have covers put upon them, and they must now be lifted every year when their leaves are down; and before you condemn a flower for its bad appearance, you must prove it two years; for often what from these seedlings appears to be an indifferent flower the first spring it shows, comes to make a good show the next season of flowering, when it has got strength to expand its petals, and display its colours.

As their roots turn large, you must add to the sand of the compost wherein they grow; and when they all, or most of them flower, use that compost for them which I have prescribed for the flowering roots; and be sure to give them proper covers, when their flower-stems are springing up, and when they are in bloom, you cannot fail to have success; and you may, by thus sowing these seeds, obtain some beautiful flowers, far more illustrious than what have hitherto appeared. Thus I have given Monsier *Beulinx*'s method of raising bisard tulips from seeds, and indeed he had very great success, which I saw when I was last at *Brussels* in 1730.

Before I mention the several sorts of the finest bisards, I must take notice, that the *Voerbelms* have of late years got into a set of those flowers, whose stems are as high as *Laguets*, and their colours are most surprisingly beautiful, which make them high in their prices and very valuable. The best sorts of these *Bisard Tulips*, are:

Abondante  
Aigle Noir  
Aglauros  
Hippolyte  
\* L'Astre du Jour  
Arienne  
Belle Minerve

Aiglon  
Bellinde  
Bellissarius  
\* Blande d'Oret noir  
Frange  
Blyrothea  
Bocaall

Brunnette

Brunnette Grisdeline	Fabule
Brunon	Negrin
Roi de Sweden	Nimroth
Chimene	* Nitocris
Chamelion	Nubiaan
Charmante	Oziris
Cuveliere	Perminie
Directus	Querdidie
Clorilde	* Ravissante
Du Thoy	Regulus
Efialtes	Roy de Siam
Fountainbleau	Russienne
Ganymedes	Sagesse
Generalissimus	Romulus
* Gloriane	Sautrelle
Glorieuse	Semiramis
Gouden Wapen	Seneschall
Henriette	Schonendonk
Hianisbe	L'Invincible
Hogenbot	Magnifique
Icodrode	Monterat
Iphigenie	Migreliene
Jemima	Mnemosina
* Juarlie	Jeuweel Royale
Keyser Carel-beste	* Chapeau-transparent
La Poudree	* Lion
Keyser van Java	Siveline
Labelle Brune	Sephora
Labelle Colombine	Soleil d'Or
La Bulgare	Soleil Royale
La Solitaire Brune	Spadille
* L'Excellente Brune	* Staaten General extra
* La Cadiere	Schoone
* La Sublime	Tacimine
Lucia	St. Andre Frange
Lucifer	F. Reuweel
Elegantissimo	Voorst van Hanover
Excellentissimo	Titienne
General Bathiani	Victorieux
Eumetis extra	Sappho.

And two roots of each of the double sorts, which I planted always in a bed by themselves, these made a very fine show, as they blow for the most part all at one time. These roots I planted in my hyacinth ground, which I stirred up from the time I took out my hyacinth roots, adding to it a fourth part more of fine white sand, duly prepared for the purpose, and always put the same covers upon them, (so soon as I perceived their flower-stems beginning to spire up) as I put upon my hyacinths, and used painted cloth, rather than matting to them, it being stronger and more capable to defend them from the too hot sun, rains and winds especially.

In ten days after their bloom is over, carefully nip off all their seed vessels; and when their stalks are entirely withered, take them carefully up: This I did with a small blunt iron instrument, for fear of wounding their roots, than which, nothing can be more prejudicial to them, and laid them in their respective places or drawers in the root-room, laying baguets by-bloomens, and bisards by themselves, according to their names and numbers; observing after they were dry, to cleanse them from all filth, old skins, old earth, and rotted fibres, which adhered to their bulbs, and which were not so proper to be taken from them when they were wet and new lifted; which method, at this time, I practised with all my bulbs that were dry, taking care not to take off any of their off-sets from them, but what came from them fully formed, and of their own accord. This I made a general rule as to the off-sets of all my bulbous rooted flowers; for if you take off their off-sets, when they are but half formed, the bulbs may blow strong, without those off-sets coming off spontaneously; but such amputations may cause a rotting both in the off-sets and their mother roots the ensuing season, which should be always avoided as much as possible. Here the roots lay exposed to free air, till the season for planting; but I never allowed the rays of the sun to come at them, which, although recommended by some, is a wrong practice; or to allow them to be laid in a warm hot room, where a fire is, the one being

being a too hasty method of drying them (I mean by the rays of the sun) ; and by the other method, you may, by too great heat, mould them, or provoke the roots to spring too soon, all which should be carefully avoided.

One thing relating to the breeders, which I saw practised in *Holland*, I cannot omit to take notice of : A gentleman there of my acquaintance, being resolved to break some very fine colours off new breeders, which he had got from *Lisle* in *Flanders*, prepared for those roots a very lean, sandy, and gravellish soil, which he was at a considerable expence to obtain, there being little or no gravel in *Holland*, and therein he planted those roots, eight inches below the surface of the beds : That spring I was there, he had forty baguets, extremely well broke, most of which retained their stripes to their fading, and had entirely thrown off their original colours. The following autumn, he planted them in some of his richest garden mould, and most of these flowers retained their fine colours, which were vastly beautiful, and sent me some of their roots, to which he gave names the year after : The reason he gave for changing the ground the second year, from that wherein he first had planted them, was, that as, at first, they were planted in a lean gravelly soil, the size of their roots was so diminished, that he was afraid their flowers would have been small, although they were broke ; and therefore he planted them in a rich soil to enlarge their roots. His experiment succeeded very well ; for the roots had recovered almost their former size, and most of them retained their beautiful stripes into which he had broke them.

*Anemone*

**T**O the tulip succeeds the Anemone, or Wind-flower.

This flower is one of the beauties of the spring, which I would advise you to get from *France* or *Holland*, as they have by far greater varieties of this flower, than what is raised in *Britain*, whose colours, as far as I have seen, are confined to reds and whites; whereas abroad I have seen great varieties of blues, purples, and brownish colours, most admirably intermixed, and most other colours, excepting yellow, which is as rare to see, as a blue ranunculus. It is called wind-flower, because it's seeds are contained in down, which are easily blown off by the wind.

They are distinguished into narrow and broad-leaved kinds: I must own I never sowed their seeds, because I purchased roots of the best kinds they had in *Holland*, *Flanders*, or in *France*, for five pound the hundred, even their newest and best flowers being sold at that rate. I gave them new earth every year, such as I used for hyacinths, to which I added a fourth part more of a fresh yellow marlish earth to their compost; I planted them the end of *January* for a full large blow, in beds two feet deep of this compost, ten inches root from root, and two inches deep. To plant them sooner I found by experience was exposing them too much to winter frosts, whereby I lost many of their roots: Indeed if the winters prove mild, you will have a greater increase of roots by planting them early; but as no person can promise for the weather, so I always took *December* or *January* to be the safest time of planting them. In planting, I always observed to put their roses (as their flower-buds are termed) uppermost, and in *March* and *April* in dry weather, I refreshed them often with water, always in the evenings, or early in the mornings; to water them in the day-time, or in sunshine, I found to be very prejudicial to them, as also to the ranunculus.

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So soon as their leaves were near faded, I took up their roots, and spread them upon a cloth in the root-room, that they might dry the better; and after they had lain there twenty days, I cleaned them, and laid them in their proper drawers, when I took off their longest off-sets, for this reason, that if I had delayed such amputation until I was to plant them, a certain moulding of those amputated parts would have ensued, which was avoided by this early taking off these off-sets, these roots having in them a very gummish clammy substance.

Of these flowers, there is a great and beautiful variety, which makes them deserve a place in every good collection of flowers.



*Ranunculus.*

THE Ranunculus, or the Crow-foot, deserves our next attention, and those are divided into two sorts: The *Turky* Ranunculus, and the *Persian*, of which last sort there are many beauties obtained from seeds every year. I shall first treat of the *Turky* Ranunculus; and of those in *Voerhelms* catalogue there are fourteen sorts, viz.

Admiral van Constantino- ple	Pivan Major
Exquisita Romana	Romanum
Merveilleuse Luteo	Romanum Trache
Merveilleuse de Paris	Sphericus
Monstrom Trache	* Tribellius Trache
Offen-bloed	Turban d'Or
* Passe Offen-bloed	Turkse Turban.

The Passe Offen-bloed blows two ranges, sometimes three ranges of flowers high; so it is one of the most valuable, upon that account, of all the kinds.

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In *George Voerhelm's* and *Van Zompel's* catalogues, they have added to the list of the *Turky Ranunculus*, four other sorts, *viz.*

*The Scraphics*, or Whites and Reds ;  
*Minerva*, Reds or Carmine Colours ;  
*Mufti*, or *La Pucelle de France*, Whites,  
 And the yellow *Merveilleuse*, mixed with fine red Colours.

These flowers are so double, that no seeds can be expected from them. I shall here treat of their culture by themselves. I am certain, from experience, that the best time of planting these roots, is the beginning of *December* ; if it is sooner done, and they shall spring, they will suffer much by the winter frosts ; but if they are then planted, they will not suffer, as not endeavouring to spring before the first of *March*, when our severest frosts are gone. Plant them in a bed as long as you please, in breadth five feet, and in depth three feet, of the same mould wherein you plant hyacinths, adding a sixth part more of cows dung to it ; and therein plant them two inches and one half deep, and four inches distance root from root : Thus must they remain until their leaf-buds begin to appear above ground, then riddle above them one inch more of stiff mould ; the reason for which is, that they may not be too much exposed to the dry weather, and to the heat of the sun, both which are very prejudicial to this plant when in flower, which will be by the beginning or the middle of *May* ; or that, in watering them, though from a fine rose upon a garden water-pot, the light earth in which they are planted may not be washed off their roots, which would be very prejudicial to their bloom and roots. I gave them frequent waterings in the evening, or very early in the morning, but not in the sun-shine. As soon as their leaves were quite decayed, I took them quite out of the ground, spread them upon a cloth, and dried them : So soon as they were dry, I cleared them  
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from the earth, and other filth attending them, and took from them what off-sets would freely part from their mother roots.

If there comes hard frost in *January* or *February*, whilst their roots are springing, and sending their fibres into the ground, I cover the sides of their beds, in which they are planted, with two or three inches of rotten tan-bark, but never mix the tan with their compost earth, that being extremely prejudicial to them, and to all kinds of *ranunculus*; and cover the tops of the beds with long straw, provided only that their plant leaves are not above ground; for if these are coming up, put one inch of earth above them, but no straw, for that would rot their young leaves, and possibly the roots also.

The *Persian* kinds of *ranunculus*, cannot be equalled by any flower in beauty, diversity of colours, and forms of their vastly magnificent flowers; for which reason I shall be the more particular in the culture of such roots as are obtained from abroad, and of the management of their seedlings, as far as I practised myself.

I would advise to have those roots from the mynheers *Voerbelms*, or *Voerhelm* and *Van Zompel* at *Hearlem*, they having the best sortments of those roots, I mean the double flowers; the semidoubles are to be purchased from some florists in *Flanders*; but the *Voerbelms* seldom choose to part with their best semidouble flowers; because from these they have the best seeds, which produce their finest double flowers. I planted the finest double sorts towards the beginning of *February*, in light rich earth, precisely the same as is directed for the *Turky* sorts; observing every year to give them fresh mould, of the same sort as is here prescribed. If you plant these roots in pots, put one root, or at most two, into one two-penny pot only; and so soon as you have planted them, sink the pots into the ground, two inches below the surface, in the form of beds, four in breadth, and as many as you please in length, according to the number of roots you have. Upon the approach of frost, I covered them with two inches of old tan;

tan; nor did I remove it after the frost is gone, that, when the plants are watered, the light earth into which they are planted, may not be washed away from their roots, but that the water then given them, may glide gently through the tan without disturbing their roots.

I choose to plant them in pots, as well as in the open beds, that their sorts may be the easier distinguished by the numbers affixed to them, which a florist should always be most careful about, and that they may not so easily be thrown out of the ground by moles or other vermin, before, or when they are in bloom, which would destroy them intirely. When they are in blow, and in hot sun-shine, it will be proper to cover them with mats, that they may not be hurried out of their beauty: So soon as the leaves are dry, I take them out of the pots, or from their beds in the open ground, and lay them in the root-room in their particular drawers, until planting season, taking care that no severe frost comes at their roots when they are out of the ground. Notwithstanding what I have directed with respect to planting the ranunculus in pots, you may plant most of them in the ground, in beds of the same compost as those in pots; and if they are not touched by vermin, they will blossom, and prosper well; but you must make the beds two feet deep of compost, for their small fibres will run far down into the earth, if it is well prepared, and will produce more flowers and off-sets than if it was shallower.

There is another method of preparing the beds for this flower, which I have seen practised with great success: Dig a trench two feet deep, fill up fourteen inches thereof with old well-rotted dung from an old cucumber, or melon hot-bed; above which lay ten inches of good, fresh, light earth, and thereon plant your ranunculus roots; for when their fibres reach the old rotted dung, they are thereby kept moist and active, whereby they show a strong bloom; but be sure to give them new composed earth and dung every year, otherwise you cannot have a good blow. If you have very  
well-

well-rotted cows dung, I would prefer it to horses dung, from any hot-bed whatever.

As to the seedlings, not any can be expected to succeed well, unless they are obtained from good coloured semidouble flowers, which is always in the option of the owner to purchase. However, supposing you have purchased fine coloured flowers of this kind, you must, so soon as you perceive the seeds part from the axis of their flowers, look them over carefully twice a day, and gather what are ripe, leaving the others to ripen of course, which will be three weeks at least from that time when the earliest seeds are ripe; then lay them in their seed-paper-bags until *October*, which season I take to be the most proper for sowing them; if they are sooner sown, they will spring up before the frosts come on, which will endanger the entire loss of them, either by throwing their young roots out of the ground, or by cutting off their leaves, which is sure to destroy them altogether.

I then prepare boxes for them, much the same as for seedling hyacinths, but more shallow, and in them sow these seeds thin; and afterwards, by their covers, I guard them from the injuries of frost as much as possible.

The young plants, by this management, will begin to appear by the first of *March*, when the severity of frosts is over, and the boxes should at that time be removed into a situation where they may enjoy the benefit of the rays of the sun, until eleven forenoon only. I prefer boxes for these and most other flower-seeds, rather than pots or seed-pans; all earthen ware being much colder in winter than wood; and before the frost comes on, I choose to lay some very fine riddled rotten tan over the ground, wherein they were sown, to keep them from frost; as also that the light earth in watering them might be preserved about their roots. In *June* these young roots should be lifted out of the boxes; and replanted in the middle of *November*, giving them new earth and larger boxes; so soon as the frosts set in, I covered the earth in the boxes with rotted tan

tan as in the former winter : I took care to have folding covers to all my boxes, which, this year, were one foot and an half deep, and as long and broad, as you have roots to fill them, which I planted at two inches distance, root from root, and near two inches deep, in the same sort of soil wherein I sowed them. I planted them in boxes for this second year, rather than in beds, that they might be less subjected to the severities of the weather, or other accidents when their roots were young ; they appeared in *March*, and some of them flowered : Those which were single and of ordinary colours I pulled up when they were in bloom ; the good ones I allowed to remain in the ground until lifting season ; but what showed this second year of their growth, were only semidoubles, excepting two dozen of fine doubles, of which I took particular care, and planted them with the other finest doubles, as some of them were very valuable, being extraordinary fine flowers ; and several of these flowers are now in the *Dutch* catalogues.

All the roots I had put into my root-room of those seedlings, I planted into a long bed two inches deep, in the compost, which was laid two feet deep in the bed, and four feet broad, the middle of *December*, or beginning of *January*. So soon as I perceived the frosts to set in strong, I covered them with two or three inches of tan, which in *March* I removed from them : So soon as I perceived their leaves coming above the ground, I riddled an inch of the strongest garden mould on them, but put no sand into it : The use of which was to strengthen these young roots, as also to preserve the earth from being washed off from them by watering when they are in bloom. I also covered them with mats in that season, laid upon arches made of hoops, and took care to pull up all bad flowers, when they were in blossom, that they might not be mixed with the good flowers. By this management, I had most extraordinary success, observing to procure some fresh roots of the best semidoubles every year from abroad, or at home, where they were good, for it is necessary to change the seeds, as seeds saved from one's own garden every year,  
do

o not so well as what you get from another soil ; and, by experience, one finds in gardens what is practised by farmers ; the most knowing of whom change their seeds of grain every second or third year at least ; So it is with flower-seeds, and without which, good success in obtaining fine flowers is not to be expected, as I observed in the practice of the best florists in *Holland* and *Flanders*. I shall now set down a catalogue of such ranunculuses of the *Persian* kind, as I know to be the best old standard flowers, distinguishing them by their colours.

*Ranunculuset, Purple and Rose-coloured.*

* Ambustus	Metellus
Jeuweel van Europa	Milo
Administrateur	My Lord Walgraaf
Archeveque du Canterbu- ry	Nonius
Bashaw van Cairo	Purpre sans pareille
* Belle Africa	Purpre Manteel
* Ballotin	* Phœnix florum
Bosphorus	* Purpre incomparable
Cardinal's Hood	Premiere noble
Dromedaris	Provincie Rose
Electryon	* Rose Charmante
Etiopiaan	Rose d'Amour
Grand Conquerant	Roy de Fleurs
Gekroonde Moor	* Sapphire
Grand Maitre Royale	Stadhouder General
* Grande Monarque	Glòria Ranunculum
* Grisdeline Roots	* Vesuvius
* Jeuweel Grisdeline	Violete Grisdeline
Incomparable nova	Viperino
Katarinete	* Violete incomparable
Keyser Amurath	* Violete illustre
Koning David	Violete sans pareille
L'Aube du jour	Cour de Tofcane, Violete superbe presque bleuf.

*Ranunculuses of Orange Colours.*

Admirante	Orange Boom
* Belle rouge Orange	Perdiccas
* Comte de Lowendahl	* Phœnix triumpante
Colombus	Feu imperiale
Aristander	Feu Royale
* Fayal	* Feu triumpante
Feu Constante	Four Ardent
Feu Dominante	Furieufe de France
* Grand Feu du Roy	Procurator
Koningin van Sicilien	Thitone
L'amp d'or	* Topana
Metropolitaan	Avernus
* Orange Voorft	* Demophoon.

*Ranunculuses of white mixed with red colours.*

Belle aimable	* Picoté aimable
* Belle Catarina	Queen of Hungary
* Belle rouge Grisdeline	Raine blanche
Bonte Leuw	Rose Imperiale
Brifetoute	Agaet Incomparable
* Charmante Grisdeline	Diademe
Capitain General	Pironetta
* Gravin van Yarmouth	* Eucharis
Dellila	Sneeuberg
Trois. Couleurs Eclatantes	Koningin Elizabeth.
Triple Croon	

*Ranunculuses of yellow and red Colours.*

Belle Asia	* Goudenberg
Berg Etna	Rhadamanthus
* Swarte Leuw	Soleil Levant
Gouden Sceptre	Vergulde Lampet
Guldezon	Vergulde Servies
Gouden Ketten	Reine de Morocco
Jeuweell van Dort	Laomedon
* Isabelle triumpante	* Marquise dell Campo
Jonquille aimable	Florida.

*Ranun-*

*Ranunculuses of feuilemort Colours.*

La Vauve Galante	Feuilemort noir
Achæus	* Glorieuse feuilemort
Agariste	brune
Bruin feuilemort Fluweel	La Financier
Brunon	Mortthead
* Feuilemort Charmante	La bella Veuve
* Le Monde travestie	* Victorieuse,
* Cantor	Vleermuys
* Chimney sweeper	Feuilemort fanspareille
Mouron	La Sepulchre de Louis
Rakima	Quatstorse
* Seimra Bruin	Demon.
* Sultan Osman Bruin	

All those sorts of ranunculus are to be sold by *Pietre*, and *Dirk*, and *George Voerbhelms*, and *Van Zompell*, florists at *Hearlem* in *Holland*; as also other fine sorts at forty guilders *per* hundred, with their different names wrote upon the paper which incloses them, and they have some at ten guilders *per* root, which are of surprising beauty, far excelling those here mentioned, of which I have had many fine sorts.

I have thus far given my own practice of propagating most of the considerable vernal flowers, whose culture deserves attention, and their beauties make the curious florists esteem them, and vie with each other who shall propagate the best of them. I shall proceed now to treat of annual flowers, and especially those we annually receive catalogues of from *Holland*, which I must say are neither rightly named, botanically, or otherwise; and I shall endeavour to do this (as far as my practice led me) in as few words, and in the best manner I am capable of, and shall begin with the *Dutch* catalogues, giving them their proper *English* names, as well as the botanical names, and their culture, having sowed all those seeds for two years successively.



*CATALOGUES van ſchoone BLOMZAADEN te vinden  
by DIRK and PIERRE VOERHELM, Blomift te Haer-  
lem, 1754.*

*Het Honderd Soorten tot 5 Gulden.*

*Bloem-Zaaden, die bet eerſte Jaar bloeiſen.*

- |                            |                           |
|----------------------------|---------------------------|
| 1 Abutilon groſſularia     | 23 Aſphodelus luteus      |
| folio flore rubro          | 24 After Chinenſis mag-   |
| 2 Acetoſa veſicaria        | no flore albo             |
| 3 Ageratium folio fer-     | 25 do. cæruleo            |
| rato                       | 26 do. purpureo           |
| 4 Agremona Mexicana        | 27 do. minor albo         |
| 5 Alcea flore veſicario    | 28 do. Conizoides         |
| Africana                   | 29 do. Jacobea folio      |
| *6 do. Perennis flore alb. | *30 Atriplex buxifera     |
| *7 do. Purpureo            | *31 do. odorato           |
| 8 Amaranthus maxima        | *32 Baſamina ſcæmina flo- |
| erecta                     | re albo                   |
| 9 do. ſparſa               | 33 do. incarnato          |
| 10 do. ſpica virid.        | 34 do. variegato          |
| 11 Annagallis flore alb.   | 35 do. purpureo           |
| 12 do. Phæniceo            | 36 do. albo pleno         |
| 13 do. cæruleo             | 37 do. incarnato pleno    |
| 14 Anthirrinum arvenſe     | 38 do. incarnato varie-   |
| flore albo                 | gato pleno                |
| 15 do. rubro               | 39 do. purpureo pleno     |
| *16 do. majus perenne flo- | 40 do. purpureo varie-    |
| re albo                    | gato pleno                |
| *17 do. rubro              | 41 do. Roſeo pleno        |
| *18 do. variegato          | 42 do. tricolore pleno    |
| 19 Agremona ſpinofa        | 43 do. luteo, ſeu noli me |
| 20 Alarini Lobelli         | tangere                   |
| 21 Aſtragalus maritim.     | 44 Bellis American. Co-   |
| 22 do. Stellatus           | ronopi flore luteo        |
|                            | 45 do.                    |

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|-----------------------------|----------------------------------|
| 45 do. Cabo de Bon es-      | 73 do. luteo                     |
| perance                     | 74 do. purpureo varie-           |
| 46 do. Majus                | gato                             |
| 47 Bidens Canadensis la-    | 75 do. rubro variegato           |
| tifol. flore luteo          | 76 Chrysanthemum flo-            |
| *48 Blataria flore albo     | re albo pleno                    |
| *49 do. luteo               | *77 do. luteo pleno              |
| 50 Borago Cretica flore     | *78 do. fistulosa                |
| variegato                   | *79 do. sulphurin. pleno         |
| 51 do. major folio varie-   | 80 Chamæpitys                    |
| gato                        | 81 Cicer album                   |
| *52 do. major flore cæruleo | 82 do. rubrum                    |
| 53 Buglossum majus flo-     | 83 Clymenum Hispani-             |
| re albo                     | cum                              |
| *54 Bupthalm. Papav.        | 84 Coluthea Arbor, ve-           |
| fol. flore luteo            | sic. Barba Jovis fol.            |
| *55 do. Tanaceti folio flo- | flore rubro                      |
| re luteo                    | 85 Condrilla Cretica             |
| *56 do. albo                | flore roseo                      |
| 57 Beuplurum perfoliat.     | 86 do. flore luteo               |
| 58 Caliminta Montan.        | 87 do. Orientalis flore          |
| 59 Calendula flore sul-     | rubro                            |
| phurino                     | 88 do. Tingitana flore           |
| 60 Caltha vulgaris flore    | luteo                            |
| pallido                     | *89 Conisa Argenteo              |
| 61 do. Polyanthos maxima    | *90 do. Aureo                    |
| *62 do. Prolifera           | *91 Consolida Anglica            |
| 63 Capno des Fumaria        | flore albo                       |
| 64 Carduus Italicus spi-    | *92 do. cæruleo                  |
| nosus Horrible              | *93 do. variegato                |
| 65 do. Mariæ                | 94 do. incarnato                 |
| 66 do. minor flore lut.     | *95 do. incarnato varie-         |
| 67 Caryophyllus Chinen-     | gato                             |
| sis flore pleno             | 96 do. pallido                   |
| 68 Caryophyllata flore      | 97 do. Reg. flore albo           |
| luteo                       | 98 do. pallido                   |
| *69 do. variegato           | 99 do. cæruleo                   |
| 70 Cartamus flore croc.     | *100 do. pallido varieg.         |
| 71 Cauca. Monspeliac.       | 101 do. argenteo                 |
| 72 Cerinthe flore albo      | 102 do. cæruleo variegato        |
|                             | X 3                      103 do. |

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|---------------------------|-----------------------------|
| 103 do. cinereo           | *131 do. luteo pleno        |
| 104 do. incarnato         | 132 do. Indicus minor       |
| *105 do. interdum pleno   | 133 do. Tunetanus vul-      |
| cæruleo                   | garis                       |
| 106 do. incarnat.         | *134 do. flore atro ruben-  |
| 107 Convolvulus auri-     | te                          |
| culatus baconi            | 135 do. luteo               |
| 108 do. major flore pal-  | *136 do. variegato          |
| lido                      | 137 do. pleno               |
| 109 do. roseo             | 138 do. Principis flore     |
| 110 do. purpureo          | albo                        |
| 111 Cotula flora albo     | 139 do. cæruleo             |
| 112 do. luteo             | 140 do. pallido             |
| 113 Cucurbita fructi po-  | *141 do. Solis luteo        |
| mi forma,                 | *142 do. pleno              |
| 114 do. pyri forma        | 143 do. semine albo         |
| *115 Cucumis Asininus     | *144 do. pleno              |
| *116 Cyanus arvensis di-  | *145 do. flore sulphureo    |
| versi-color               | *146 do. pleno              |
| 117 do. flore albo        | *147 Galega flore albo      |
| 118 do. cæruleo           | 148 do. cæruleo             |
| 119 do. purpureo          | *149 Garidella foliis tuni- |
| 120 do. orientalis flore  | cissime divisis             |
| albo odorato              | 150 Geranium latifoli-      |
| *121 do. luteo odorato    | um                          |
| 122 do. Purpurea odo-     | 151 do. Muscatum            |
| rato                      | 152 do. semine nigro        |
| 123 do. segetum flore     | 153 Glaucium flore lu-      |
| purpureo                  | teo                         |
| 124 Ervum verum           | 154 do. flore rubro         |
| 125 Ervum equinum mi-     | 155 do. cæruleo             |
| nus                       | 156 Gramen Alopectoi-       |
| 126 do. majus             | des majus                   |
| 127 Fœnum Græcum fa-      | *157 do. Tremulum ma-       |
| tivum                     | jus                         |
| 128 Flos Adonis flore ru- | *158 do. minus              |
| bro                       | *159 Hallicaccin. fructu    |
| 129 do. Africanus aureo   | aureo                       |
| pleno                     | 160 Hedifarum annu-         |
| *130 do. fistulosa pleno  | um                          |

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|---|---|
| 161 do. Clypeatum flore albo                  | 183 Lychnis perfoliata flore rubro            |
| *162 do. rubro                                | 184 do. Hirsuta minor flore variegato         |
| 163 Hedipnoides flore triplo                  | 185 do. Missipole flore albo                  |
| 164 Hiera. Barbarum flore albo                | 186 do. carneo                                |
| *165 do. luteo medio nigro                    | 187 do. purpureo                              |
| 166 do. Montanum perrenne flore luteo         | *188 do. Scabiosa                             |
| 167 Hesperus Montan. altifolius               | 189 do. Segetum                               |
| 168 Hypecoun                                  | 190 do. Orientalis flore rubro                |
| 169 Hipericum flore luteo                     | 191 do. Saponaria flore pleno                 |
| 170 Horminum coma rubra                       | *192 Linaria Augusti folio flore albo         |
| 171 do. Pestgridis                            | *193 do. flore albo et luteo                  |
| *172 Hysophus flore rubro                     | 194 do. cærul. et luteo                       |
| 173 Lathyrus Augusti folio flore rubro        | 195 do. luteo parva                           |
| 174 do. albo et rubro variegato               | 196 do. perennis flore purpureo               |
| 175 do. flore luteo                           | 197 Linum Africanum                           |
| 176 do. Odorato flore albo et rubro variegato | 198 do. altissimum                            |
| *177 do. purp. et rubro variegato             | 199 do. Umbilicatum flore albo                |
| 178 do. Supinuus minus                        | 200 Lisimachii Virginina                      |
| 179 do. Tingitanus                            | *201 Lotus flore atro rubente folio variegato |
| 180 do. Vicia subterr.                        | 202 do. luteo                                 |
| *181 Lavandula folio dissecto                 | 203 Lucojum annuum flore rubro                |
| *182 Leucanthem. Tanaceti folio flore majore  | 104 do. flavo                                 |
|   | 205 do. arborescens flore albo                |
|   | 206 do. purpureo                              |
|   | 208 do. roseo                                 |
|   | 209 do. rubro                                 |

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| 210 do. variegato                              | major  |
| * 211 do. folio glabro flore albo              | 235 do. minor                                |
| 212 do. flore lutea mixto                      | 236 do. hirsuta                              |
| * 213 do. perenne flore lutea                  | * 237 do. maculata sapinosa                  |
| 214 do. vernum flore purpureo                  | 238 do. Turbinata                            |
| 215 do. rubro                                  | 239 do. Orbiculata                           |
| * 216 Lupinus flore albo                       | 240 do. Semine glabro                        |
| * 217 do. luteo odorato                        | 241 do. plano                                |
| * 218 do. Indicus flore cæruleo                | 242 Melilotus Italicus                       |
| * 219 do. major incarnato variegato            | 243 do. flore violaceo                       |
| 220 Lupinus minor semine pallido flore cæruleo | 244 do. minor                                |
| * 221 Lupinus majore cæruleo variegato         | 245 Meagrum Monosparum                       |
| 222 do. minor cæruleo variegato                | 246 Milium Gamboccium                        |
| 223 Marjorana Cretica odorato                  | 247 do. Solis                                |
| * 224 Malva Bætica flore albo                  | 248 Mirabilis Peruvianus flore albo et rubro |
| * 225 do. Roseo                                | 249 do. luteo et rubro                       |
| * 226 do. incarnato                            | 250 do. toto rubro                           |
| * 227 do. rubro                                | 251 do. luteo                                |
| 228 do. Orientalis rubro                       | 252 Moldavica flore albo                     |
| 229 do. flore albo                             | 253 do. cæruleo                              |
| * 230 do. folio crispo                         | * 254 do. Orientalis flore violaceo          |
| * 231 do. variegato                            | * 255 Nardus Bohemica flore albo             |
| 232 Matricaria folio crispo                    | 256 do. cæruleo                              |
| * 233 do. flore pleno                          | * 257 do. Orientalis flore variegato         |
| 234 Medica Cochialata                          | * 258 Nasturtium Indicum majus, flore aureo  |
|  | 259 do. luteo                                |
|  | * 260 do. minus flore aureo                  |
|  | 261 do. flavo                                |
|  | 262 Nechanthemum                             |

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|-------|-------------------------------|-------|--|
| 262   | Nechanthemum flore purpureo   | 286   | Perficarsa Orientalis  |
| 263   | Nicotiana latifolia           | 287   | Phaseolus Indicus coccineo   |
| 264   | do. rotundo folio             | 288   | do. nigro  |
| * 265 | Nigella flore albo pleno      | 289   | do. minor fructu luteo   |
| * 266 | do. cæruleo pleno             | 290   | do pallido   |
| 267   | Ochrus semine pullo           | 291   | Pomum Amoris fructu luteo major                                      |
| 268   | Ornithopodium minus           | 292   | do. minor  |
| * 269 | Papaver flore albo pleno      | 293   | do. rubro major  |
| 270   | do. incarnato pleno           | 294   | do. minor  |
| 271   | do. purpureo pleno            | * 295 | Ptarmica flore albo pleno  |
| * 272 | do. incarnato straito pleno   | * 296 | do. purpureo pleno   |
| 273   | do. roseo straito pleno       | 297   | Reseda flore albo<br><i>There is now another of the Reseda, viz.</i> |
| 274   | do. rubro straito pleno       | 298   | Reseda Egyptiaca, Floribus ex luteo viridibus odoratissimis          |
| 275   | do. totum rubrum              | 299   | Ricinus Americanus   |
| 276   | do. albo major interdum pleno | 300   | Scabiosa Annus maxima  |
| 277   | incarnato straito pleno minor | 301   | do. flore albido   |
| 278   | do. Erraticum flore albo      | 302   | do. prolifero  |
| * 279 | do. diversi-color flore pleno | 303   | do. purpureo   |
| * 280 | do. Phæniceo                  | * 304 | do. variegato  |
| * 281 | do. atra rubente fimbria      | 305   | Schandix major   |
| * 282 | do. Phæniceo fimbriato        | 306   | Scorpioides Corniculis asperis                                       |
| 283   | do. palido                    | 307   | do. non asperis  |
| 284   | do. roseo                     | 307   | do. filiqua crassa   |
| 285   | Pelecinus Vulgaris            | 308   | Scholymus spinosus flore luteo                                       |
|       |                               |       | * 309 do.  |

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|-------------------------------------|---|
| * 309 do. flore variegato           | 325 do. flore albo                        |
| 310 Sefamoides parvus Matthioli     | 326 Triticum Americanum                   |
| 311 Specul. Venereum flore albo     | 327 Valeriana æstiva                      |
| 312 do. purpureo                    | 328 do. Indica flore albo                 |
| 313 Stachys agria platanifolia      | 329 do. rubro                             |
| 314 Thlaspidium flore pallido luteo | 330 Valerianella Cretica fructu vesicaris |
| 315 Thlaspi Creticum flore albo     | 331 do. Umbellata                         |
| 316 do. purpureo                    | 332 Verbascum nigrum flore albo           |
| 317 do. violaceo                    | 333 do. flore luteo                       |
| * 318 do. Monspeliaco               | 334 Vicia Orientalis                      |
| 319 do. luteo minor                 | 335 do. glabro amplo candido              |
| * 320 do. saxatile flore luteo      | 336 do. sativa                            |
| * 321 do. Virginiana albo odorato   | 337 do. semine nigro                      |
| 322 Tordilium Narbonense            | 338 do. Silvestris fructu rotundo         |
| 323 do. Syriacum                    | * 339 Viola hortensis tricolor            |
| 324 Trifolium Lagopifolia           | 340 Vulneraria Pentaphyllos               |
|                                     | 341 Urtica Romana.                        |

*Bloem-Zaaden, die't tweede jaar bloeijen, or seeds of biennial flowers which blossom the second year after sowing.*

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|--|--------------------------------------|
| 342 Acarna Theophrasti et Plinii               | des                                  |
| 343 Astragalus Alpinus procerior alopecuroides | 349 Belle videre                     |
| * 346 Aquilegia variegata,                     | 350 Bulbonac flore albo              |
| * 347 do. Virginiana                           | * 351 Bulbonac flore cæruleo,        |
| 348 Bardana Arachoides                         | 352 Capsicum arborecens fructu rubro |
|  | * 353 Caryophyllis                   |

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|--|---|
| * 353 Caryophyllis Barbat-<br>tus flore variega-<br>to | * 372 do. atro rubente ple-<br>no       |
| 354 Clenopodium Cana-<br>dense                         | * 373 do. incarnato ple-<br>no          |
| * 355 Carolina magno flo-<br>re                        | * 374 do. luteo pleno                   |
| 356 Coluthea arboref-<br>cens vesicaria flore<br>luteo | * 375 do. variegato pleno               |
| * 357 Digitalis flore al-<br>bo                        | * 376 do. nigro pleno                   |
| * 358 do. roseo  | * 377 do. purpureo ple-<br>no           |
| * 359 do. rubro  | * 378 do. roseo pleno                   |
| * 360 do. purpureo                                     | * 379 do. rubro pleno                   |
| * 361 do. Virginiana                                   | * 380 Malva Mexicana                    |
| 362 Geranium majus cæ-<br>ruleo                        | 381 Mexicana, -                         |
| 363 do. variegato                                      | * 382 Moldavica Ameri-<br>cana perennis |
| 364 Horminum Corni-<br>Cerv. folio                     | * 383 Papaver Indium pe-<br>renne       |
| 365 Laburnum   | * 384 Plantago roseo                    |
| * 366 Lathyrus perennis<br>major                       | 385 Scabiosa perennis                   |
| * 367 do. minor  | 386 Sontalina incana o-<br>dorata       |
| 368 Leucojum Cerinthi<br>folio                         | 387 Tyntimalis Catapu-<br>tia           |
| 369 Lychnis Coronaria<br>rubro                         | * 388 Valeriana Græca<br>flore albo     |
| * 370 do. variegato                                    | * 389 do. cæruleo                       |
| * 371 Malva hortensis ro-<br>sea flore albo ple-<br>no | 390 do. minima flore<br>cæruleo         |
|  | 391 Vicia Bengalensis                   |
|  | * 392 Viola Mariana flore<br>albo       |
|  | * 393 do. cæruleo                       |
|  | 394 Vulneraria                          |

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*Blsem Zaa-den*, or seeds of flowers which must be sown upon hot-beds.

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|--|--|
| 395 <i>Abutilum Indicum</i><br>flore aurantio                | 409 <i>Datura flore purpu-</i><br>reo odorato    |
| 396 <i>Amaranthus trico-</i><br>lor luteo rubro et<br>viridi | 410 <i>Ficoides Chrystalli-</i><br>na            |
| 397 do. rubro et viridi                                      | 411 <i>Lacrymæ Jobi</i>                          |
| 398 do. <i>Globosus flore</i><br>albo                        | 412 <i>Malum insanum</i><br>fructu luteo         |
| 399 do. purpureo   | 413 do. purpureo                                 |
| 400 do. <i>Christatus flore</i><br>albo                      | 414 <i>Ocimum Nobile</i>                         |
| 401 do. luteo  | 415 <i>Piper Indicum ob-</i><br>longo fructu lu- |
| 402 do. rubro  | teo  |
| 403 do. <i>Conglomerato</i>                                  | 416 do. rubro                                    |
| 404 do. totum rubrum   | 417 do. major fructu lu-                         |
| 405 <i>Alcea Americana flo-</i><br>re aurantio               | teo  |
| 406 <i>Bidens Indicus flore</i><br>aurantio                  | 418 do. rubro                                    |
| 407 <i>Canna Indica flore</i><br>luteo                       | 419 do. minor fructu lu-                         |
| 408 do. rubro  | teo  |
|  | 420 do. rubro                                    |
|  | 421 do. fructu <i>Cerasi</i>                     |
|  | 422 do. minore                                   |
|  | 423 do. <i>Punctata</i> .                        |

The first named plant in the *Dutch CATALOGUE*, is the *Abutilon grossularia folio flore rubro* ; in page 208.

The right name of this plant is, the *Makoa Caroliniana repens Grossularia folio*, and the mistake I was under in the first edition of this work, was occasioned by the mistake the *Dutch* florists committed in sending me the seeds of this plant, for the other which I named *Tournes*, or Eastern-Mallow with a fine red flower ; it requires a gentle hot-bed in the spring, and when the plants are three inches high, they should be transplant-  
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ed into the flower borders, and shaded until they take root, and must be planted into a warm situation, where they will produce their flowers, and perfect their seeds: Those plants with the *Altheas* or *Mallows* make a fine appearance, flowering most of the summer months, and make a good show in the flower-garden; they require a rich sandy soil, and should have the same culture with the *Mallows*, which I mention here to avoid repetitions.

2d *Acetosa Vesicaria* is a species of the sorrel, the culture of which every gardener knows.

3d, *Ageratum folio serrato*.

The right name of this plant is, *Ageratum foliis serratis*, C. B. the common maudline. This is propagated in gardens for medicinal use; it requires a light undunged soil, and is increased by parting its roots in summer: But I am of opinion, there is another sort of this plant which is what is meant by here in the *Dutch Catalogues*, which is the *Ageratum Alpinum foliis serratis glabris flore purpurecente*: Purple flowered Alpine *Ageratum* with smooth leaves, serrated upon the utter edges of the leaves of the plant. This a very hardy plant, being a native of the *Alps*, and must have a strong soil in a shady situation; it creeps upon the ground, and I have used it for edgings in wilderness quarters; it increases by seeds, and by dividing its roots in *August*.

4th, *Agrimonia Mexicana*. I take to be the *Eupatorium Peruvianum folio subrotundo, trinervi et acuto, flore caruleo*, *Vaill-memoires d'Acad. des sciences*. *Peruvian Hemp*, *Agrimony*, with a trinervous sharp pointed leaf, and blue flowers.

This is a hardy plant, but must have a sandy soil, and if raised on a moderate hot-bed, it will come the faster on; if it is planted in pots, it will protect the plants in the winter from the severities of frost under any common hot-bed frame which is covered.

5th, 6th and 7th, are already treated of, under the article *Abutilon*.

8th, *Amaranthus maxima erecta*, or tree *Amaranth*.

9th, *Amaranthus*

9th, *Amaranthus sparsa*, is the *Amaranthus maxima*, *panicula*, *longa*, *pendula*, *semine rubello*, or Love lieth bleeding.

10th, Is the *Amaranthus spicis viridibus*, or Amaranth with a red spike, and green tips upon the flower petals.

These three sorts I have seen raised and flowered pretty well in the open ground, but they are much better, and make a far prettier show when they are raised on hot-beds. Wherefore I shall here treat of all the *Amaranthuses* mentioned in the catalogue, with numbers 394, 395, 396, 397, 398, 399, 400, 401, 402, and inform my readers of their management, by which I obtained these beautiful flowers to their greatest perfection of bloom.

Having provided myself with good seeds from abroad, I sowed them upon a hot-bed of horse-dung the end of *February*; and in frosty nights covered them with mats laid over the glasses, to prevent the frost from entering the earth on the hot-bed; I also sowed them very thin, that when I had occasion to transplant them, (which must be done) I could lift them with good balls of earth to preserve their roots.

If the hot-bed is in good temperament of heat, those plants will appear above ground in a fortnight's time, when you should prepare another hot-bed near the seed-bed; that, in transplanting, the plants may not suffer by being carried too far when they are young, and their roots tender: When this last bed is in a right temperature of heat, lift the amaranths from their seed-bed with a trowel, and as much earth as you can; and covering this nursery-bed with six inches of good, rich, fresh earth, plant them therein five inches asunder every way in rows, and water them with a small bottle, and a few straws upon its mouth, whereby the water will drop and not gush out; and this method is better than to use a watering-pot, whereby these very young plants are sometimes borne down, and will not recover again, but rot and die entirely. I took care to shade them in the heat of the day, by laying mats over  
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the glasses, until I perceived the plants to have struck fresh roots; and in warm weather, I lifted up the glasses to give them air, and turned their inner sides out, to dry the steam which might be upon them from the fermentation of the dung, which, if it falls upon these young plants, will be very prejudicial to them. Cover also the glasses in the night time, to prevent the cold from injuring them: In three weeks time, these plants will, with the care above prescribed, grow large and near meeting, and then I would advise planting them in two-penny pots, one in a pot, and put them into a hot-bed of tanners bark, and in a glass-case made on purpose for raising tender annuals. I rather choose to sow these plants on dung than on tan, because I put earth above the dung, which I could not do above the tan, and they spring better in earth over the dung, than in pots sunk in the tan. After you have got your tan from the pits in the middle of *March*, throw it up into a heap, to allow so much of the moisture to drain off; for if it was made into a bed very wet, it would not ferment or heat so well, or so equally as it does, when some of the moisture is drained off; and I would make choice of the middling ground bark, neither of the largest nor of the smallest sorts, the heat of the one being too violent, and the smallest bark loses its heat too soon for this purpose of raising annuals. So soon as you perceive the bark to begin to heat, put it into your pit, which, in wet grounds, shall be one half foot only below the surface of the earth, and, in dry grounds, may be two feet below the surface of the ground, walled with stone or brick, and caulked at bottom, to hinder the earth from mixing with the tan: The breadth of this bed should not exceed six feet; the length as you please, but not less than twenty feet. The frame I used for this purpose, was of the following dimensions.

Upon the brick or stone-wall, which is one foot above the surface of the earth all round, I erected timber-standards, fastened into a wooden-frame, which was fixed on the stone or brick-wall on the four sides of the

the tan-pit. In the uprights, which were four feet in height, I put glass-frames, and from the top of those had slope-glasses, which run in grooves from the top of the upright glasses quite to the top of the slope, where they run under a long and broad piece of timber at the top, which divided the slopes to the south from those to the north. The reason why I had sloping-glasses, as well as up-rights to the north, was, that this case in summer should have all the air possible; and that in winter, as it contained many plants, which required no more than common shelter from frosts, or in very hard winters required such warmth, as would exclude the cold weather, I choose to have it as airy as possible, and had a small flue to use in very cold weather in the back-parts of this house below the uprights. I put wooden-shutters over both the front and back slopes, which run in grooves above the glasses, to preserve them from sudden storms in the spring and summer months, and from hard frosts in winter, when I set the flue to work in severe cold weather only, in such a manner, as that the botanical thermometers rose to near temperate air, or ten degrees below it, which is sufficient to expel any frost: In the front of this glass-case I observed, that the upright glasses were divided into two ranges; so that either the upper or lower range of glasses might be opened at pleasure in hot weather, to admit air to the plants: The east and west ends of this house were all of glass, and to the east end I had a small shade, the breadth of the house, to cover the fire place of the flue, and to admit the gardener to go in at the door of the glass-case, to do what work he had there in watering or trimming the plants. This glass-case was very convenient; for, in summer, I therein raised many annuals (which, by mismanagement, are dwarfs in our climate) to a great size; and, in winter, it served me as a conservatory for plants, which required only proper protection from our severe frosts, and which could not live in severe winters without such protection. But to return to the culture of amaranths, so soon as I had planted them in their pots,

pots, which I sunk up to their rims in the tan; if it was of a moderate heat, I covered the slope-glasses of the case with mats, until I perceived they had taken new roots, and after that I opened both the front and slope-glasses, to admit air to the plants in the day time, and in mild weather: By the beginning of *July*, with this management, I had them six or seven feet high, with strong stems, and preparing for flowering; then removing them from the glass-case, I took them into the green-house, and placed their pots as near the front windows as I could, watering the plants all over both stems and leaves, after I set them in, and in ten days thereafter I put them out, when I saw an appearance of rain, and placed them near a hedge, where they were protected for eight days from the violence of the rays of the sun, and afterwards set them in a warm and calm situation, where they flowered, and ripened their seeds to great perfection; which seeds I always observed to gather from the flowers, at the top of the spike or stalk, but not from the flowers on collateral branches: The soil I used for them was good, rich, light earth; and as these plants are very free in perspiring, I observed to give them a good share of water in dry weather, which made them grow strong and flower well.

The same culture will serve the two sorts of *Amarantoides*, or *Globe Amaranthus*, or everlasting flowers, both which are vast beauties: They are named everlasting flowers, because, if their flowers are gathered when full blown, and before they begin to fade, they continue in the same beautiful state for many years; and I have seen ladies use them instead of gum flowers for many years, their natural beauties excelling all the artificial works of gum, though never so well performed.

The purple kind has been an inhabitant of *England* for many years; the white kind is more rare, and vastly beautiful, and they will blossom in a good stove until *January*.

11. *Anagallis*, or Pimpernel, of which there are three sorts: *Anagallis flore albo*, C. B. P. white flowered Pimpernel.

12. *Anagallis flore Phæniceo*, C. B. P. Pimpernel, with red flowers.

13. *Anagallis flore cæruleo*, C. B. P. Pimpernel, with blue flowers.

These grow in cultivated places in the corn-fields; but the best sorts require to be sown in the spring, on a bed of light earth, and to be kept clear from weeds, and well watered, where they will make a good appearance,

14. *Antirrhinum arvense flore albo*, Snapdragon, or Frog's Mouth; of which there are the following species in the *Dutch catalogues* of flower-seeds.

15. D°. *Flore rubro*.

The first sort is the *Antirrhinum medium flore albo patulo. virid. Lusitan.* or middle Snapdragon, with a white spreading flower.

The second is the *Antirrhinum majus saxatile, flore minore purpurascens, foliis angustissimis*, Bar. Icon. Great Rock Snapdragon, with very small leaves, and a purple flower.

16. *Majus perennes flore albo*.

17. D°. *flore rubro*.

18. D°. *Variegato*.

The first sort is the *Antirrhinum latifolium flore albo, ricu luteo*, Baerb. the broad-leaved white flowering Snapdragon.

The second sort is the *Antirrhinum latifolium flore rubro, ricu luteo*, the broad-leaved Snapdragon, with red flowers.

And the third sort is the *Antirrhinum linariae angustifolio eleganter variegato, flore rubro, ricu luteo*, striped Snapdragon.

These plants should be sown in *April* or *May*, in an undunged sandy soil; for if they are sown in rich land, they will neither flower nor prosper: In *October* following, I cut down their stems, especially those which attempt

attempt to flower the first year within three inches of the ground, whereby their roots will be strengthened; and the beginning of *April* following, I transplanted them into the same sort of soil, to remain there for flowering: If they are transplanted into pots, I choose to perform this work the second year after sowing; and when they had done blowing, took off-sets from the mother plants in *April*, but always from their best flowers; then planted them in the pots in a lean sandy soil, mixed with some lime rubbish, which had lain a year incorporated with the earth before using it; by which means I have preserved these plants in vigour for several years, and have had them to ripen their seeds very well with me, from which I have raised many fine seminal varieties.

19. *Argemone Spinosa*, or *Argemone Mexicana*, *Turnef.* or the prickly poppy. This is an annual plant, which should be sown in *March*, and in *May* transplanted into the borders of the flower-garden, where it will thrive and perfect its seeds so well, that those seeds scattered on the borders will appear soon in the spring, and produce annually their flowers.

20. *Alarina Lobellii* is the *Asarina Lobellii* *Lugdun.* 915. *F.* 171. *Hedera saxatilis magno flore*, *B. P.* 306. *Antirrhinum foliis oppositis cordatis crenatis*, *H. Cliff.* 325. Rock Alehoof.

This plant requires the same culture with the snapdragon or antirrhinums; they grow best in a sandy, or rather a stoney soil; for if they are planted in a rich dunged soil, they never flower so well, and very often rot in winter; wherefore I would advise to plant them in court-yards, near walls, and upon a sandy or rocky soil, where they will make a handsome appearance in most of the summer months.

21. *Astragalus maritimus* is the *Astragalus annuus maritimus*, *procumbens*, *latifolius*, *floribus pediculo insidentibus*, *Turnef.* Annual trailing milk-vetch with broad leaves, and the flowers sitting on pedicles.

22. *D<sup>o</sup>. Stellatus* is the *Astragalus annuus*, *procumbens*, *floribus glomeratis purpureis*, *Boerb. Ind.* Annual

al trailing milk-vetch, with purple flowers growing in clusters.

Both these sorts should be sown in light fresh earth in *March*, and watered duly; and if they are too thick sown, they ought to be so thinned, as to be two feet distance plant from plant, and kept clear from weeds; they flower in *June* and *July*, and their seeds ripen in *August*.

23. *Asphodelus luteus* is the *Asphodelus luteus et flore et radice*, C.B. Yellow Asphodel, or King's Spear. These plants are propagated by seeds, and they should be sown soon after they are ripe, in a warm border, upon a light, fresh, sandy soil, in *August* or *September*, which is the best season, three inches deep, and I would choose to perform this work in this manner: Make a bed four feet broad, and as long as you please; then sow your seeds, thrusting them one inch deep with your fingers below the surface of the bed, and afterwards cover them with one inch more of the same earth; in the spring these plants will appear, when they must have an inch more of fresh earth put upon them, which will greatly strengthen their young roots; they must be kept clear from weeds, and watered in dry weather: in *October*, a new cover of two inches of the same earth must be put upon them: The beginning of *March* following, I planted them out into borders, where they are to remain and flower; they are also propagated by dividing their roots in autumn, once in three years, but not oftner; and observe to let six inches of earth be above the root when it is planted, and at twelve inches distance root from root: Those roots, which you intend to propagate by off-sets, should have their stalks cut down so soon as their flowers fade; the ripening of their seeds wastes the roots, and hinders them to off-set. Some persons advise to transplant them the first year after sowing, but that is a wrong practice from my own experience, they having no strength to flower the second year; and if that work is performed at *Michaelmas*, it is doubted if these young plants will out-live a severe winter.

24, 25, 26, 27, are called, *Aster Cbinensis magna*,

*Flore caruleo*

— *flore albo magno*

— *flore purpureo*

— *flore minor albo.*

But their botanical name is, *Aster annuus caule villosus, purpurascente Eryngii folio, flore maximo purpureo, pulcherrimo, semine violaco, Kian-sita, Sinensis Jessieu, H. R. P.* Annual Star-wort from *Cbina*, with purple hairy stalks, eryngo leaves, and a beautiful large purple flower, and violet-coloured seeds: There are also some of them with blue, large white, and small whitish coloured flowers; and one kind, the seeds of which I had lately sent me, whose flower leaves are white, and most elegantly striped with a bright scarlet colour.

These are all vast pretty ornaments to the flower-garden in Autumn; they should be sown upon a rich sandy border in the middle of *March*, and when they are two inches high, should be transplanted into a nursery-bed of the same soil, and be well watered and shaded from the rays of the sun, until you perceive them to be taking new roots: Some of the strongest may be lifted and planted in pots, filled with the same soil, to adorn court-yards and parlours, where they will make a most handsome appearance: They flower in *August, September* and *October*, and some of them ripen their seeds. I have raised many seminal varieties, besides those mentioned in the *Dutch* catalogues, from seeds of my own saving; to procure which, I used two methods: In *July*, I sowed some of their seeds in pots, and during the winter, gave them shelter, either in the green-house, or under a frame, to keep them from the frost, which would ruin them altogether: By this method, my plants were strong, fit to plant out for good in *April*, and flowered in *May* and *June*; and I had from these plants as fine ripe seeds in *September*, as any which came from abroad; from which, *anno* 1749, I raised many extraordinary beautiful, seminal varieties of pink, deep carnation, blue, white, and purple colours, and one in particular with a striped blue and white flower.

Some of those seeds I sowed in *February*, upon a moderate hot-bed, which pushed the plants forward; and planting them out early in the month of *April*, I had the same success with them, as I had with these which I sowed in autumn: For I prefer the autumnal sowing of all such flower-seeds, when a person has suitable shelters to preserve them in winter, for the same reasons which I gave when treating of the culture of celery. We have now got the double purple sort.

28. The *Aster Conizoides*.

29. D<sup>o</sup>. *Jacoea folio*.

These are the two sorts of annual *Asteriscus*, or yellow Starworts, at least, if any flower can be so named: They must be sown early in the spring, on a warm open border: It is needless to transplant them; for it is better to allow them to remain where they are sown; by which means, they will flower sooner, and of consequence seed better than if they were transplanted.

30. *Atriplex baccifera* is the *Chenopodio-morus minor*, Boerb. Ind. Smaller Mulberry blight, or Berry bearing Orach.

31. D<sup>o</sup>. *Odorato* is the *Chenopodio-morus major*, Boerb. Ind. Greater Mulberry blight, or Strawberry Spinage; but why it is in the *Dutch* catalogue named *Odorato*, is what I cannot comprehend, because really this plant has but a very faint smell, if any at all.

The uncommon and beautiful appearance of the flowers and seed-vessels of these two last named plants, makes them deserve a place in every good garden. That they might blossom and seed early, I used the following culture to them: About the middle of *February*, I sowed them upon a hot-bed, whose greatest heat was gone; and so soon as they came up, I gave them air in good weather, by taking the glasses off them, that they might not be drawn too much, observing also to water them when occasion required: Towards the middle of *April*, I transplanted them into a bed of rich ground, eight inches distance, plant from plant, lifting them with as much earth out of the hot-bed as I could, that their tender roots might not be injured by such trans-

transplanting: This work I performed in an evening, and watered them with a bottle between their roots, rather than with a garden-pot, because pot-watering is too violent for most young plants. I covered this bed in which they were planted with mats sustained by arches of hoops, until I perceived the plants had taken new roots; and about six weeks after, I thinned my plants if they were too thick: When they began to grow tall and spire up for flower, I put down iron-wires close by their stems, to which I tied them, by which means they made a more beautiful appearance than if they had trailed upon the ground. They flowered in *June* and *July*, and many of their seeds were ripe in the beginning of *August*, which when I perceived, and that their seeds were falling upon the ground, I stirred the surface of the bed with my hand to cover those fallen seeds; and about six weeks after, I had a plentiful crop of young seedlings, which, about the beginning of *October*, I transplanted into large pots, and put them under hot-bed frames to save them from the severities of the winter, whereby I had a great many plants early in the spring to plant out.

I used also to plant pots full of them, to flower in chambers, and in the green-house in the summer, with Balsamines, Amaranths, Tuberoses, &c.

The 32, 33, 34, 35, 36, 37, 38, 39, 40, 41 and 42, are all feminal varieties of the *Balsamina femina*, Female Balsam, or Balsam Apple. All those seeds must be sown on a moderate hot-bed early in the spring, observing to give them much air, that they may not be drawn slender and long by too-much heat. So soon as they rise to eight inches, lift them with a good ball of earth, and put three of those plants into one three half-penny pot; but to have them in the greatest perfection, I observed a few things, whereby I never failed of having most extraordinary fine flowers, it being one of the prettiest annuals we have.

1<sup>mo</sup>. As to the four first sorts mentioned in the *Dutch catalogues*, viz. *Balsamina femina flore albo*. d<sup>o</sup>. *incarnato*, d<sup>o</sup>. *variegato*. d<sup>o</sup>. *purpureo*. I did not chuse to

purchase their seeds, as they are but single flowers, few double blossoms are to be expected from them; and as we have the seeds of the double flowers specified in the same catalogue, I thought it more proper to purchase those, from which I might expect a fine bloom.

2<sup>do</sup>. In lifting those plants from their hot-bed, I observed to pot those only which had spotted stems, from which I always obtained variegated flowers, having, as I said before, transplanted them into pots filled with rich, light, fresh earth. I watered them well, to settle the earth about them, and carried them in to my glass-case, for forcing of annuals (which I have before described). I put their pots half-way only into the tan-bark, in case that too great heat should burn their tender roots; but the great fermentation of the bark once past, I sunk the pots to their brims, observing at the same time to water and shade them well, until I observed that they had struck new roots; in six weeks after, they were some three, some four feet high, when I removed them from this glass-case, and put them into the green-house, where they blossomed most handsomely, observing to tie their stems to long small reeds, to keep them from falling, breaking, or wind-waving.

3<sup>to</sup>. So soon as they began to expand their blossoms, I observed to pinch off all such as had but one colour, preserving those with variegations, by which means I had always good seeds from my own plants, from which I raised numbers of vast fine flowers every year, and I observed to preserve only the most double.

43 Is the *Balsamina fœmina, seu noli me tangere*; this may be sown in *March*, in a bed of light earth, and may remain where it is sown, but be sure to keep it clear from weeds: It is preserved only by the curious, for the diversion it affords to persons who handle its seed vessels when ripe, which burst with uncommon elasticity upon the least touch, as most kinds of this flower do; wherefore great care should always be had in gathering the seeds of their best sorts.

44. *Bellis Americana Coronopi flore luteo.*

The *Latin* word *Bellis*, though improperly given to this

this plant in the *Dutch* catalogues, induces me to treat of the garden kinds of bellis's or daizies which I had forgot; and as they are very pretty, and make a very fine show, either when they are planted in clumps, or in edgings to borders in a shady situation; there are six or seven sorts of them which deserve our regard.

They delight in a good hazely loamy earth not dunged, and must be transplanted, and their roots must be parted every year the beginning of *March*, which is the best method to prevent their degenerating, or flying off into the flower of the wild daizy or gowan; they prosper best in a shady situation, but not under the drops of trees. But we return to describe.

45. *Bellis Cabo de bon Esperance..*

46. ————— *Majus.*

The first of these is the *Chamæmelum Lusitanicum latifolium*, *sive Coronopi folio Breynii*, or broadest leaved *Portugal* chamomile. This is a hardy plant; its seeds should be sown in the beginning of *March*, on a bed of rich light earth, keeping the ground clear from weeds, and giving frequent waterings; when they are two inches high, transplant them into beds at ten inches distance; and when they are four inches high, they should be then transplanted into large borders, where they are to blossom, shading them from the sun, and watering them, until they have taken fresh root, where their flowers will, with others, make a very beautiful appearance.

The 45th is the *Leucanthemum Lusitanicum folio argenteo laciniato*. *Inst. R. H. Portugal* Ox-eye daizy, with a silver-jagged leaf. This plant requires the same culture with the former, and some of them may be planted in pots, to adorn rooms, where their shining leaves will make a very pretty appearance.

The 46th is the *Chamæmelum fætidum*, *C. B.* Stinking Chamomile, or May-weed: This requires the same culture, but should not be transplanted; but if sown too thick, should be thinned, and the ground afterwards smoothed over with the hand; they require often watering, which will promote their growth much.

47th.

47th is the *Bidens Canadensis latifolia flore luteo* Tournef. Broad-leaved Canada Hemp-Agrimony, with a yellow flower; this being a native of *Canada*, must be raised on a hot-bed early in the spring, in order to have it perfect its seeds in *Britain*; they may also be planted into pots, to adorn court-yards or parlours; they chuse a light soil.

48th Is the *Blattaria alba*, J. B. the white Mulleine.

49th Is the *Blattaria lutea*, C. B. the yellow Moth Mulleine: I sowed them in *July* on a dry rubbishy soil, and in winter covered them with pease haulm in severe frosts; in the spring I transplanted them into the same sort of soil, wherein they flowered and seeded very well, and much stronger than those plants which were sown in the spring.

There is another sort of this plant, called *Blattaria flore roseo*, Boerb. Ind. or rose coloured moth mulleine. This is preferable to any of the two former sorts; it requires much the same culture (with this difference) that I sowed it in pots, which I put under a hot-bed frame, to preserve it from the severities of the winter: In the spring following, I transplanted it into a dry gravelly soil, where it prospered well for several years.

50. *Borago Cretica flore variegato* is the *Borago flore pallifcente, roseo, aut suave-rubente*, Tournef. The borage, with pale or rose-coloured flowers.

51. Is the *Borago foliis variegatis*, Hort. Lugd. Bat. The stript leaved borage.

52. Is the *Borago major flore cæruleo*, J. B. Borage with large blue flowers; they should be sown in *March*, in a dry poor soil, wherein they will flower and seed best.

53. Is the *Buglossum angustifolium majus flore albo*, C. B. P. Greater narrow-leaved bugloss, with a white flower; these plants should be sown in *March*, in a shady place in wilderness quarters, where they will flower and perfect their seeds very well.

54. *Bupbthalmum papaveris folio, &c.* is the *Bupbthalmum tanaceti folio orientale flore luteo amplissimo*, Tour-

*Tournef. Corroll.* the Eastern Ox-eye with large yellow flowers.

55. Is the *Bupbthalmum tanaceti minoris folio incano, flore sulphureo amplissimo, Boerb. Ind. alt.* Ox-eye with hoary leaves, and a large sulphur-coloured flower.

56. Is the *Bupbthalmum orientale tanaceti minoris folio, flore albo amplissimo, Tournef. Cor.* Eastern Ox-eye with large white flowers.

All these flowers should be sown in *March* on a light undunged soil, and in *May* afterwards should be transplanted into the flower-borders of the garden, or into pots, to adorn chimneys; they flower in *July*, and perfect their seeds early in *September*. I have also sowed them upon a moderate hot-bed in *March* with great success.

57. Is the *Bupleurum perfoliatum longifolium annuum, Tournef.* Annual long-leaved perfoliated Hare's Ear; this chuses a good garden soil, and is to be sown in *March*.

58. Is the *Calaminta magno flore, C. B.* Calamint with large flowers; these plants should be sown early in the spring, on a light dry soil, wherein they flower and seed well.

59. *Calendula flore sulphurino*, is the *Caltha vulgaris flore Citrino, C. B.* the common Marygold. This plant in the catalogue is wrong named *Calendula*, for that name is given only to the *African* Marygold, whereas *Caltha* is the true name of this plant, notwithstanding Doctor *Linnaeus* classes the *Calendula's* amongst the *Caltha's*.

60. Is the *Caltha vulgaris flore, pallido, C. B.* the pale coloured Marygold.

61. Is the *Caltha polyanthos maxima, C. B.* the largest double Marygold.

62. Is the *Caltha media, folio longo prolifera, Boerb. Ind.* the childing Marygold.

All these plants should be sown in beds or borders of common earth in *March*, the two first sorts are pot-herbs, and, if permitted to stand, will, by the dropping of their seeds, sow themselves.

The seeds of the two last mentioned sorts should be carefully gathered, and the plants transplanted into places where they are to remain and blossom. This operation should be performed, when the plants are three inches high, and when there is an appearance of rain; but it will be proper to exchange these seeds with a neighbour or nurseryman, once every two years, otherwise they are apt to degenerate.

63. Is the *Capnoides*, *Tournef.* Podded Fumitory. This is a very pretty annual flower; it should be sown in *March*, and when the plants are young, they may be transplanted into pots or the borders of the flower-garden, where, if they are allowed to shed their seeds, they will give abundance of plants the ensuing summer.

64. Is the *Carduus italicus spinis horribilibus*, *J. B.* Great spined *Italian Thistle*.

65. Is the *Carduus humilis alatus*, *sive Carduus annuus Mariæ*, *folio lituris nigris notato*, *H. Catbart.* Dwarf annual *Lady's Thistle*, with dark spotted leaves.

66. Is the *Carduus minor flore luteo*, *C. B.* Lesser yellow *Thistle*.

All these plants should be sown in a dry poor soil in the spring, but should not be transplanted. They perfect their seeds very well in *Britain*.

67. *Caryophyllata flore luteo*, is the *Caryophyllata montana*, *flore magno luteo*, *J. B.* Mountain *Avens* with great yellow flowers.

These plants may be sown in *March*, should be transplanted into moist shady borders of the garden, and may be increased by parting their roots in the spring, when they will make a fine appearance in a wilderness, without any culture, but keeping them clear from weeds.

68. Is the *Caryophyllus Sinensis supinus Leucoii folio*, *flore pleno*, *Boerb. Ind. alt.* the double *China Pink*.

69. Is the *Caryophyllus Sinensis supinus. Leucoifolio flore vario*, *Tournef.* the variegated *China* or *Indian Pink*.

These plants from seeds afford a charming variety  
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of very rich colours, from whose flowers only the seeds are to be gathered, for they are very subject to degenerate, and they have this particularity in them, that from the seeds of the double flowers come always double flowers, but the seeds saved from single flowers seldom produce double flowers.

I always sowed these seeds in *April* on a moderate hot-bed to hasten their vegetating; and after they had arrived to be two inches high, planted them out, (having first, whilst in the hot-bed, innured them to the air) into a nursery-bed; so soon as I perceived them spring up to flower, I cut them all off, never suffering them to flower the first year, for thereby their roots are much injured; they endure the cold very well in winter; and the succeeding season I allowed them to flower at pleasure: Of the fine sorts, so soon as they appeared, I took off-sets and planted them in the borders of the flower-garden, whilst I kept their mother roots in the nursery-bed to give me good seeds. Nor did I allow these young plants to flower the first year after transplanting, but nipped their flower-buds all off. With this management I had very fine flowers for many years together.

70. Is the *Carthamus officinarum flore croceo*, Tourn. Bastard Saffron or Saf-flower; this plant delights in a good rich soil, and when they are two inches high, should be transplanted; or if they are sown too thick, they should be thinned, for their branches spread much, by which means their seeds do not ripen so well. They make use of this plant in *Germany* for dyers, and sow them in the open fields.

71. Is the *Caucalis Monspessulanus*, Tournef. or Bastard Parsley of *Montpellier*; this plant grows well in rich garden ground, and should be sown in *March*: There is no great beauty in it, but it may be amongst other varieties in good collections of plants. It seeds well in *Britain*.

72. Is the *Cerinthe quorundam major, flore albescente*, J. B. the large Honeyworth with whitish flowers.

73. Is the *Cerinthe quorundam major, flore flavo, folio, spinoso*,

*spinoso*, *J. B.* the large Honeywort with prickly leaves and a yellow flower.

74. Is the *Cerinthæ flore versicolore ex albo et purpureo*, *Boerb. Ind. alter.* the Honeywort with purple and white party coloured flowers.

75. Is the *Cerinthæ flore versicolore ex albo et rubro*, *Boerb. Ind. alter.* the Honeywort with party-coloured flowers of red and white.

The seeds of all those plants should be sown in autumn after they are ripe, for if they are kept until the spring they often do not germinate; sow them on a warm border by a wall, and they will withstand the winter severities without covering; they may in the spring, and in moist weather, be transplanted into the borders of the flower-garden; where they will make a pretty variety amongst other flowers; and if they are there allowed to shake their seeds, you will have plenty of plants the ensuing summer.

76. Is the *Cbrysanthenum matricariæ folio flore albo pleno*, *H. C.* the double white Corn Mary-gold.

77. Is the *Cbrysanthenum matricariæ folio, flore luteo pleno*, *Boerb. Ind.* the double yellow Corn Marygold.

78. Is the *Cbrysanthenum Creticum, petalis florum fistulosis*, *Tournesf.* the quilled corned Marygold.

79. Is the *Cbrysanthenum matricariæ folio, flore pleno sulphurino*, *Boerb. Ind.* the double sulphur-coloured Marygold.

I always sowed those plants upon a moderate hot-bed, in order to have them early; and when they were two inches high, I transplanted them into a nursery-bed, where I suffered them to remain until they were preparing to flower, whereby I distinguished what were single, and which of them were double; and then rejected the singles, and planted out the doubles into borders, or into pots; those in the borders grew very big as to the plant, and had few flowers; but those in the pots, by their roots being confined, flowered better, but did not grow so strong as to their leaves and stalks; but in both of those methods I was much disappointed of gathering good seeds, wherefore I planted  
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cuttings of the double flowers in pots, which took root in three weeks time ; in winter covered them with a hot-bed frame, and sometimes in great frosts put them into my glass-case, with sedums and ficoides's, wherein I preserved them through the winter. In April I planted them out to flower in a middling soil ; from the seeds of which plants I had always admirable flowers. The same culture I used to all the sorts of the *flos Africanus*, and the *flos Tunetanus*.

80. Is the *Chamæpitys moschata, foliis serratis: An prima Dioscoridiis?* C. B. The ground pine with serrated leaves ; this plant delights in an undunged soil. It is an annual, and should be sown soon after its seeds are ripe ; for if they are kept till the spring, these seeds often fail in their germinating.

81. Is the *Cicer sativum, flore candido*, C. B. P. white flowered Garden Chiches.

82. Is the *Cicer sativum flore ex rubro purpurascente, semine rubro*, C. B. Garden Chiches, with purplish red flowers and a red seed.

These seeds should be sown in the beginning of March, in rows three feet asunder ; and when they appear, they should be hoed up like pease in drills ; they flower in July, and their seeds ripen in August and September.

83. Is the *Clymenum Hispanicum flore vario, siliqua plana*, Tourn. Spanish Chichling Vetch, with a variegated flower, and a plain pod.

I choose to sow those seeds in September : They endure the colds very well, and will therefore flower sooner than those sown in the spring, and perfect their seeds better, they delight in a dry, warm, undunged soil.

84. Is the *Coluthea Æthiopica, flore Phæniceo folio barbæ Jovis*, Breyn. Cent. Ethiopian Bladder Senna, with red flowers and leaves like the Silver Bush.

These plants I chose to sow on a hot-bed early in the spring ; and when the plants were four inches high, I transplanted them into pots filled with fresh sandy earth, shading them until they were new rooted. In winter I  
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put them into an open glass-case, covering them from frosts; and the ensuing spring, planted them by a warm wall in the open border, where they produced many fine scarlet flowers, and perfected their seeds very well: I also observed to tie their stalks to sticks, to prevent the winds from breaking their tender branches, by which their beauty would have been lost: I also observed never to put them into a green-house, because in that situation they would have been drawn up too much, to the great prejudice of the plants.

85, 86 87, 88. Are all feminal varieties of the *Chondrilla*, or *Gum succory*: There is little beauty in these plants, and they should be sown in the spring upon an open border, where they will flower and seed very well.

89. Is the *Conyza foliis argenteis*, J. B. Flea-bane with silver leaves.

90. Is the *Conyza foliis aureis* C. B. Flea-bane with yellow leaves.

Those may be sown in the spring in a dry soil, where if kept clear of weeds, they will thrive and prosper well; some of them I chose to sow in pots.

91. *Consolida Anglica flore albo*, is the *Symphitum*, or *Consolida major fœmina, flore albo*, C. B. P. The greater female Comfrey with a white flower.

92. *Consolida Anglica, flore cœruleo*, is the *Symphitum orientale, folio subrotundo, aspero, flore cœruleo odoratissimo*, Tourn. Coir. Eastern Comfrey with a rough roundish leaf, and a very sweet smelling blue flower.

93. Is a feminal variety of the 92d sort.

94. Is the *Symphitum Creticum ecbii folio angusto, villis longissimis horridis, flore croceo*, Tourn. Coir. Candy Comfrey, with a narrow viper's bugloss leaf, covered with very long hairs, and a saffron coloured flower.

95. Is a feminal variegation of the former plant.

96. Is the *Symphitum ecbii folio ampliore, flore albo* Inst. R. H. Comfrey, with a large bugloss leaf and a whitish flower.

All

All those plants are propagated by sowing their seeds in *March*, in a fresh undunged soil; they should be thinned, and in *August* afterwards, transplanted into the places where they are to remain, flower and perfect their seeds.

The 97, 98, 99, 100, 101, 102, 103, 104, 105, 106. are all feminal varieties of this plant named the *Consolida regalis* in the *Dutch* catalogues of flower seeds, which is the *Delphinium* or *Lark-spurs*.

The seeds of all those plants should be sown in autumn, immediately after they are ripe; if they come up before winter, they are hardy enough to stand out the severities of frosts; in the spring when they are two or three inches high, they should be transplanted into a nursery-bed one foot asunder every way; for they branch out largely, and there they may remain to flower, which they will do in *June* and *July*, and ripen their seeds in *August*, observing to keep all the prettiest colours, and the doublest flowers for seeding, by which means you can improve them, and thereby you will raise new varieties of this pretty flower.

The 107. *Convolvulus auriculatus Baconi*, I take to be the *Convolvulus maritimus nostras, rotundis foliis Soldanella officinarum, Mor. Hist.* This plant grows on the sea-shore, or on a gravelly sandy place in the garden; in the spring it may be sown.

The 108, 109, 110, are perfect weeds in a garden, and of those there are many feminal varieties of colours; they should be sown on a bed of light earth in the spring, where they will flower, and perfect their seeds in autumn.

111. *Cotula flore albo* is the *Chamemelum Æthopicum lanuginosum, flore albo Breynii*, woolly *Ethiopian Chamomile* with a white flower.

112. *Do. Flore luteo* is the *Chamemelum Æthopicum lanuginosum flore luteo, Boerb. Ind.* The woolly *Ethiopian Chamomile* with a yellow flower.

I always chose to sow the seeds of those plants on a hot-bed in the spring, and afterwards I planted them  
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abroad, where they flowered and perfected their seeds very well in autumn.

113. The *Cucurbita* or Squash. They require to be sown upon a moderate hot-bed; and in *May* you may transplant them into rich earth, by or near to a wall, upon which you can tie up the branches of these squashes, where, with their fruits, they will make a very pretty appearance.

114. *Cucumis Asininus*, squirting Cucumber, or the *Elaterium officinarum*, Boerb. Ind. This plant is preserved in gardens for diversion: For when the seeds of the plants are ripe, whenever they are touched, they rush out with impetuosity on those persons who touch them; these seeds should be sown on a warm border in *March*, at about nine or ten feet distance, where they will thrive exceedingly: and, if suffered to shed their seeds, will give you next year a plentiful crop of young plants

115. *Cyanus arvensis diversicolor* is the *Cyanus segutum flore vario*, Corn-bottle with a variable flower.

116. Do. *Flore albo*, C. B. white flowered Corn-bottle.

117. Do. *Flore caeruleo*, blue flowered Corn-bottle.

118. Do. *Flore purpureo*, purple-flowered Corn-bottle, as is also No. 123 the same.

Those seeds should be sown in autumn, immediately after their seeds are ripe, and in spring following, they may be transplanted into borders, where they will flower and seed very well.

119. *Cyanus Orientalis, flore albo odorato* is the *Cyanus floridus odoratus Turcicus, sive Orientalis major, flore albo*, the white flowered sweet Sultan.

120. Do. *Luteo odorato* is the *Cyanus floridus odoratus Turcicus, seu Orientalis major flore luteo*, H. L. the yellow sweet Sultan.

121. Do. *Purpureo odorato* is the *Cyanus floridus odoratus Turcicus, flore purpureo*, Park. Purple sweet Sultan.

The yellow kind I always sowed upon a hot-bed, to make it vegetate, and afterwards planted them out in *May* into the borders, where they made a fine gay appearance,

pearance, being much preferable to the other two sorts in smell and colour. The white and purple-flowered sweet sultans I sowed in open borders, where they flowered very handsomely. All the sorts require to be well watered in dry weather. I observed always to keep the earliest blowers for seed; so soon as they attempted to seed from two or three flowers, I cut off all the other flowers from those plants, which hastened the perfecting of their seeds, and this method I practised with many annual flowers, which continued in bloom until the frost pinched them, whereby I gathered good seeds.

122. Is the *Ervum verum Camerarii*, Camerarius's true jointed podded Vetch; these seeds should be sown on a warm border, at ten inches distance, seed from seed, whereby their seeds will ripen well: They must be earthed up like pease.

123. Is the *Ervum equinum siliqua singulari*, C. B. the horse-shoe vetch with a single pod; those seeds should be sown in *March* on a warm border, in the places where they are to remain, one foot seed from seed, for they spread much; they will flower in *June*, and ripen their seeds in the beginning of *September*.

124. Is the *Ervum equinum siliqua multiplici*, C. B. Horse-shoe Vetch with many pods. This requires the former culture in every respect.

125. *Fœnum Græcum sativum*, C. B. Garden Fennugreek; these plants should be sown in a light soil in *March*, and kept constantly clear from weeds, and should be thinned, so that the plants may stand where they were sown, at one foot distance plant from plant; they will flower in *June*, and perfect their seeds in *September*.

126. Is the *Flos Adonis bortenensis, flore minore atrovibente*, C. B. the common *Flos Adonis*, with a red flower; the seeds of this plant should, with other annuals, be sown in *August* in borders, where they will out-live the winter, and flower in *April*, and through most of the summer months, and ripen their seeds very well. There is another sort called *Flos Adonis silvestris foliis longioribus, flore luteo*, C. B. yellow-flowered *Flos Adonis*,

*nis*, which requires the same culture, and is a far prettier flower in every respect; it flowers early, and makes a most beautiful appearance. For this see article *Buphthalmum*, &c.

127. The *Flos Africanus aureo pleno* is the *Tagetes maximus rectus*, *flore maximo multiplicato*, *aurantii coloris*. Greatest upright African Marygold, with a very large orange-coloured flower.

128. Is the *Tagetes maximus rectus*, *flore maximo multiplicato fistuloso*, *aurantii coloris*, upright African Marygold, with a very large orange coloured piped flower.

129. Is the *Tagetes maximus rectus*, *flore maximo multiplicato pollidè luteo odorato*. Greatest upright African Marygold, with a very pale yellow double flower, with a sweet scent.

130. Is the *Tagetes maximus rectus*, *flore maximo multiplicato pallidè luteo et fistuloso*. Greatest upright African Marygold, with a large double, pale and piped flower, called the quilled African.

131. *Flos Tunetanus vulgaris*. Before I describe this plant and its varieties, I must make the proper distinction between the *Flos Africanus* and the *Flos Tunetanus*, which are often by gardeners, in gathering the seeds, and by our seedsmen in their catalogues, blended together, under the denomination of African and French Marygolds. The African Marygold is a native of Africa about Tangier, on the African side of the Mediterranean; whereas the plant here named *Flos Tunetanus* is a Chinese plant, and was first sent over to the King of France's royal gardens at Paris, by the French missionaries, from whence it was distributed amongst the curious in Europe; and from its being first raised in France, it has been called the French Marygold, though both plants require the same culture. But to return,

132. Is the *Tagetes Indicus minor*, *flore simplici sive Cacyophylus Indicus*, *f. B.* Common French Marygold, with a single flower, commonly called Indian Clove Gillyflower.

133. Is the *Tagetes Indicus minimus*, *flore sericeo bifutie obfuso*, *H. L.* Smallest French Marygold, with a small red hairy flower.

134. Is

134. Is the *Tagetes Indicus medius flore luteo multiplicato*, H. L. The middle French Marygold, with a double yellow flower.

135 and 136, are seminal varieties of 132, as is also the piped variegated sort, all of which are annuals. To have these flowers blow to great perfection, it will be proper to use the following culture: In *March* sow them upon a moderate hot-bed, such as has served to raise your early cucumbers, (for a hot-bed of more heat would injure them;) when they are two inches high, transplant them into another moderate hot-bed, observing to shade the plants, and to water them often, but gently at a time, until you perceive they have taken fresh root; the more air they get every fine day by taking off the glasses, they will prosper the better. When they are seven or eight inches high, transplant them into beds in the open ground; and after transplanting and watering, cover them with good double mats laid upon arched hoops; here they may remain until the middle or end of *May*; then prepare a bed of good, rich, light, sandy earth, and observing to throw out the single flowers, which you will discern by their long flower-pods, as the double flowers always bear turgid round flower-buds; transplant them either into nursery beds, lifting them with balls of earth, or into pots to adorn rooms, or court-yards, those in beds at fifteen inches asunder, where they will flower and seed to great perfection: Those I designed for seeding, I nipt off their side branches, and never suffered them to bear more than three or four heads, and tied their stalks up to wires or rods to sustain them from being broken by winds, &c. By which method I raised many seminal varieties of both sorts, observing to plant most of the sweet scented sorts in pots for rooms only, and not the other sorts, they having a disagreeable flavour. By this management, and putting them for three weeks into the glass-case, in which I raised my annuals, as before described, when treating of the amaranthus, I have had them five feet high, which rather appeared like flowering shrubs than annual plants;

those in pots continued flowering all the winter in the house, as also those in the open borders continued in full bloom, until the frost pinched their beauties;— they will do indifferently well, if sown in the open ground, but will not be so large a flower.

137. Is called in the Dutch catalogues, *Flos Principis flore albo*; but its true name is the *Amaranthus spica albescente habitiore*, *Martin. bist.* Amaranthus with a great whitish spike of flowers.

138. Is a feminal variegation of the former, as is also the 139th.

These require the same culture with the amaranthus, and thrive with less forcing, but as there is no great beauty in those plants, they seem at present to be much neglected in our *English* gardens.

The 140, 141, 142, 143, 144, and 145, are all feminal varieties of the flower named here *Flos solis*, which botannically is called the *Corona solis*, *Tabern.* All these plants are natives of America; notwithstanding they flower, and these sorts ripen their seed so well, as that one would imagine they were natives of this island. These here mentioned are annuals, and in the beginning of *March* should be sown upon a bed of light fresh earth; when they are three inches high, they should be transplanted into a nursery bed, from which they may be transplanted again when they are a foot high, into borders or bosquets, of large flowering plants in the garden, watering them well until they have taken root; and when they flower, tie them up to long stakes, that the wind do not break them; their chief beauty consisting in their being erect, so as to shew their large stalks and blossoms to the greatest perfection.

The 146, is the *Galega vulgaris floribus penitus candidantibus*, *C. B.* Common Goat's Rue with white flowers.

147. Is the *Galega vulgaris, flore cœrulea*, *C. B.* Common Goat's Rue with blue flowers.

These plants are best propagated by sowing their seeds in a bed of rich light earth, keep them clear from weeds;

weeds; and if the plants are too thick, thin them to one foot, plant from plant, and the second year they will flower, and will continue some years flowering, provided you do not suffer the plants to seed, which will make them decay so soon as they have perfected their seeds.

148. Is the *Garidella foliis tenuissimè divisis*, Tournef. There is no English name for this plant, Dr. Tournefort having named it *Garidella*, in honour to Dr. Garidell, professor of physic at Aix in Provence. This plant requires the same culture with the *Galega*, and should never be transplanted.

149. Is the *Geranium latifolium annuum floribus cæruleis longissimis*, Hort. Oxoniensis, broad leaved annual Cranes-bill with a blue flower, and a very long beak.

150. Is the *Geranium cicutæ folio Moschum redolens*, C. B. P. Muskèd Cranes-bill.

151. Is the *Geranium tenui-folio Myrrbinum*, flore amplo purpureo, semine nigricante, Barr. obscur. fine cut leaved Cranes-bill, with a large purple flower and a blackish seed.

These should be sown in *March* on a bed of fresh light earth, and may be allowed to stand and seed, which they will drop in autumn, and the young plants will come up before winter, enduring its cold well enough; they will flower early the succeeding spring: Keeping them free from weeds, and thinning them, if too thick, is all the culture they require.

152. Is the *Glaucium flore luteo*, Tourn. Yellow horned Poppy.

153. Is the *Glaucium orientale flore rubro maximo*, Tourn. Coir. Eastern horned Poppy, with a great red flower.

154. Is the *Glaucium flore violaceo*, Tourn. Blue flowered horned Poppy.

The first sort is a triennial plant, if it is sown in a light undunged soil; but if it is sown in a rich soil, it flowers the first year, and often dies quite.

The second sort requires the same culture. I sowed both sorts always in *March* in poor ground.

The third sort grows in many places in Cambridge-shire in England, and requires the same culture; if they flower the first year after sowing, cut off their flowers; and the second year suffering them to flower, they will perfect their seeds much better than in the first year of their growth.

155. Is the *Gramen Alopecuroides majus*, Germ. Emac. the common Fox-tail Grass.

156. Is the *Gramen ganniculatam locustis maximis Phœniciis tremulis*, Tourn. the greatest Quaking-grass, with red pannicles; there is a sort which is white.

157. Is the *Gramen tremulum minus pannicula parva*, Farklin. Smaller Trembling-grass.—All those sorts should be sown in *March*, or in autumn, on a bed of light earth, and require no other culture but to be kept free from weeds.

158. Is the *Alkekengi officinarum*, Tourn. Common Winter Cherry of the Shops.

This plant is propagated by sowing its seeds in the spring on an open undunged border; and when they come to be an inch high, they may be transplanted into pots, and set in a shady place, and in *November* and *December* will shew their pretty fruits, which at first is inclosed in a tunicle; which, at the ripening of the fruit, bursts, and displays a fine gold coloured fruit in *December*. I chose to plant them in pots, and confine their roots, which in the open ground spread too much: You may also plant some of them in the open ground.

159. *Hedisarum annum majus Zeylanicum mimosæ foliis*, Tourn. the greater annual French Honey-suckle, with leaves like the sensitive plant.

160. Is the *Hedisarum clypeatum flore suaviter rubente*, H. Eyst. French Honey-suckle, with a delicate red flower.

161. Is the *Hedisarum clypeatum flore albido*, Tourn. White-flowered French Honey-suckle.

The first sort should be sown on a hot-bed in the spring, and then may be transplanted into pots when it is two inches high, and set in a warm situation, where it will flower and seed well: The other two sorts should be sown in *March* on a bed of light earth, and about the middle of *July* should be transplanted into borders or pots, (especially the red flowering sort) where they will flower much better than if they were transplanted in the spring. The red flowered sort makes a fine show with its scarlet blossoms.

162. Is the *Hedypnois annua Tourn.* Crooked seeded Hawk-weed.

Those plants should be sown in *April*, in the places where they are to remain (as they do not agree with being transplanted) on a bed of light earth, and be left at nine inches distance plant from plant.

163. Is the *Hieracium barbatum flore sulphureo medio nigrum*, lesser Hawkweed with sulphur coloured flowers, and black bottoms.

164. Is the *Hieracium barbatum medio nigrum minus*, *H. L.* lesser yellow Hawkweed.

165. Is the *Hieracium murorum folio pilosissimo*, *C. B. P.* golden Hawkweed with hairy leaves.

The two first sorts should be sown in autumn, in fresh undunged earth, and should be thinned to eight inches plant from plant; they will flower well the succeeding spring, and perfect their seeds.

The last sort here mentioned is an abiding plant, and by parting their roots, may be propagated and planted in fresh undunged, or rather a stony earth, and in any situation.

166. Is the *Hesperis montana pallida odoratissima*, *C. B. P.* Pale Mountain Dame's Violet, with a very odorous smell.

This plant should be sown in *March*, and the following year may transplanted into a place which has been dunged with tanners bark, which will make the plants produce a great quantity of large flowers: Although these plants are biennials, only when you suffer them to seed, yet, by pulling off their flowers before they

they decay, and cutting them down, which makes their roots produce new heads, they will flower four or five years, without decaying.

167. Is the *Hyecdon orientale, latiore folio, flore magno*, *Tournef. Corroll.* Eastern horn wild Cummin, with a broad leaf and a large flower. I would advise the seeds of this plant to be sown, (where they are to remain for they do not agree with transplanting) in autumn, soon after which their seeds are ripe; for if they are sown in the spring, they seldom vegetate the first year, and by sowing in *August*, they will soon vegetate, and will both flower and perfect their seeds. They love a fresh, light and undunged earth.

168. Is the *Hypericum vulgare flore luteo*, *C. B. P.* Common St. John's Wort, is a plant common in England; it should be sown in autumn, it loves a fresh undunged soil, and will grow in almost any situation.

169. Is the *Horminum comâ purpureâ violaceâ*. *J. B.* Clary, with purple violet tops.

170. Is a species of the *Horminum*, I never heard of, nor do I know it by the name here given it.

The first plant should be sown in *March*, upon a border of undunged fresh earth, kept clear of weeds, and thinned, if sown too close, to eight inches distance plant from plant, and in *March* transplanted into a place where it is to remain, allowing it two feet plant from plant.

171. Is *Hyssopus flore rubro*, *C. B. P.* Red flowering Hyssop.

This plant should be sown in a fresh undunged sandy soil, where it thrives better than in rich moist earth, and if sown too thick, should be thinned.

172. Is the *Lathyrus angustifolius flore rubro*, *J. B.* Narrow-leaved red-flowering Chickling Vetch, commonly called Scarlet Lupine.

173. Is the *Lathyrus angustifolius Americanus variegatus*, *C. B. P.* Narrow-leaved Chickling Vetch of America, with a variegated flower.

174. Is the *Lathyrus Bæticus flore luteo*, *Park. Theut. plant.* Spanish Chickling Vetch with a yellow flower,

175. Is

175. Is the *Latbyrus angustifolius, flore ex albo et rubro variegato, odorato, f. B.* Commonly called the painted Lady Pea. This is a seminal variety of the 176th but not so sweet scented.

176. Is the *Latbyrus distoplatyphyllos hirsutus, mollis, magno et peramæno flore odoratissimo, Hort. Catbar.* Sweet scented Pea; of this kind of pea there is both the purple and white flowered.

177. *Latbyrus supinus.* Creeping red Chickling Vetch.

178. Is the *Latbyrus Tingitanus filiquis orbi flore amplo ruberrimo, Morison. Histoire Ting.* Tangier Chickling Vetch; with a large deep red flower.

179. Is the *Latbyrus arvensis repens tuberosa radice, C. B.* Creeping wild Chickling Vetch, with a tube-rose root.

All those plants may be sown in autumn, or in the spring, though I prefer autumnal sowing by a warm hedge or wall to their being sown in *March*; for those sown in *August* will be four times larger than those sown in the spring. In patches in the garden they look well.

The last sort may be also then sown, and may afterwards be propagated by parting its tube-rose roots; in *February* I have eaten those roots roasted like potatoes, which please some palates.

180. Is the *Lavendula folio dissecto, C. B.* Cut-leaved Lavender.

This plant should be sown in *March*, in a fresh soil, and afterwards transplanted into pots, to adorn rooms, where it will flower and seed well.

181. Is the *Leucanthemum tanacetifolio, flore majore, Boerb. Ind.* Ox-eye Daizey, with a tansey leaf and a large flower.

These plants should be sown in beds of light fresh earth, and afterwards transplanted into a nursery-bed, at eight inches distance, where they may remain until *July*, then plant them into the garden borders, and in the spring following they will flower. There is a sort of this with a pretty variegated leaf.

182. Is

182. Is the *Lychnis segetum rubra, foliis perfoliatis*, C. B. P. Red Corn Champion with thorough wax-leaves.

183. Is the *Lychnis hirsuta minor, flore variegato*, Tourn. Small hairy Champion with a variegated flower, commonly named Dwarf Lychnis.

184. Is the *Lychnis coronaria sativa Dioscoridis flore albo*, C. B. P. Single white Rose Champion. The seed merchants here, whom I have mentioned in the former part of this work, amongst a fine parcel of new flower and tree seeds, have got seeds of the painted Lady Rose Champion, which is the prettiest flower of all the Champions; its culture is the same with the others, but it requires a good undunged fresh soil in pots, to shelter it from the severities of the weather in winter.

185. Is the *Lychnis hirsuta, flore incarnato, major*, C. P. B. Pale Lychnis of Constantinople, but improperly.

186. Is the *Lychnis Hispanica Valerianæ rubræ folio, flore purpurascente*, Tournef. Spanish Champion with a red valerian leaf, and a purple flower

187. Is the *Lychnis foliis scabiosæ altissimæ annuæ, quæ foliis Agrimonie nonnihil similia sunt*, H. L. Lychnis with scabious leaves.

188. Is the *Lychnis segetum meridionalium, annua, hirsuta floribus rubeis uno versu dispositis*, Morison. Hist. Corn annual hairy Champion with flowers set on one side of the stalk.

189. Is the *Lychnis coronaria Dioscoridis sativa, flore rubro, veluti flammeo fulgens*, C. B. P. Rose Champion, with a flaming red coloured flower.

190. Is the *Lychnis seu saponaria, flore pleno*, Tourn. generally named, double Soapwort.

All these sorts (except the last) should be sown in March on beds of light fresh earth, and from thence transplanted into nursery beds of the same earth, at ten inches distance, where they should remain till spring, when they should be transplanted into the borders of the pleasure garden. The last sort bears seeds, and being

ing a flower of no great beauty, is planted in a place by itself, being a great runner therefore I always used to plant it in pots for rooms, where, with other flowers it made a very good appearance.

191. Is the *Linaria annua angustifolia, flosculis albis longius caudatis*, *Triumphb.* Narrow leaved annual Toad-flax, with small white flowers, having long spurs.

192. Is the *Linaria annua angustifolia, flore ex albo et luteo variegato majore*, *Morif. Hist. Plant.* Narrow leaved annual Toad-flax, with a large variegated white and yellow flower.

193. Is the *Linaria latifolia tryphylla, flore purpureo magno riclu aureo*, *Hist. R. H.* Broad three leaved Toad-flax, with a purple flower and a golden standard.

194. Is the *Linaria quadrifolia lutea*, *C. P. B.* Four leaved yellow Toad-flax.

195. Is the *Linaria perennis purpurea major odorata*, *C. B. P.* Great purple sweet smelling perennial Toad-flax.

All these may be either sown in light fresh earth in autumn, (which I would rather advise) or in the spring, and be kept clear from weeds; and the perennial kind may, from the seed-bed, be transplanted into the middle of large borders of the flower-garden, where they will make a fine appearance, as they continue long in bloom. It will be proper that this work be done in *April*.

196. Is the *Linum sativum latifolium Africanum fructu majore Tournef.* Broad leaved African flax, with a large fruit.

197. Is the *Linum perenne majus cæruleum. capitulo majore*, *Morif. Hist.* Greater perennial blue Flax with a larger head.

198. *Linum umbilicatum*, is the *Omphalodes linifolia*, *Tourn*, called Venus Navel Wort.

The two first sorts should be sown in the spring, upon a bed of ligh earth, and be kept clear from weeds, where they will flower very well; the last sort I always chose to sown in autumn, the success of their seeds germinating,

germinating, consists chiefly in sowing them in autumn, whereby they will flower early, and ripen their seeds much better than those sown in the spring, which have not season and heat to ripen them in our climates.

199. Is the *Lythymachia orientalis angustifolia*, flore purpureo, Tourn. Corr. Narrow leaved Willow-herb, with a purple flower.

The seeds of this plant should be sown always in autumn, (for if they are kept till the spring, they do not grow) on a warm border of light fresh earth, and in the spring the plants may be removed into a place where they may have the morning sun, and where they are to flower, for they are not fond of being often transplanted.

200. Is the *Lotus ruber filiqua angulosa*, foliis variegatis, Boerb. Ind. Red square codded Birdsfoot, Trefoil, with variegated leaves.

201. Is the *Lotus angustifolius*, flore luteo purpurascete, ex insula Sancti Jacobi, Hort. Amst. Narrow-leaved Birds-foot Trefoil, with a yellow purplish flower from St. James's Island

The first of those plants is a seminal variety, but has this excellent qualification, that these seedlings always retain their variegation, which few variegated plants do.

The second sort is a tender plant, and both of them required to be raised upon a moderate hot-bed in March, such as has served to raise early cucumbers. When the plants are two inches high, they should be transplanted into pots, and these pots sunk into a moderate hot-bed, which will oblige the plants the readier to strike root : As they are impatient of cold, they must have a warm green-house in winter, and when they are in the hot-bed, they must have as much air as possible, otherwise they will be drawn too much : In May following, their pots may be removed for fourteen days into the shade, and afterwards placed in a warm situation, free from winds, where they will flower well and ripen their seeds ; they delight in much water in the summer

summer season, but in winter must have it sparingly, least you rot their tender roots.

202. Is the *Leucoium minus et annuum*, *Doden*. Lesser annual Stock Gilliflower.

203. This I suppose to be a feminal variety of the former, though I must own I never saw the plant.

I sowed the seeds of the first plant at two seasons, in March and in May, upon a light bed of fresh earth, and obtained many doubles from seeds. The seedlings at both seasons flowered in ten weeks time after their being sown, which has acquired it the name of the ten weeks stock-gilliflower: From the doubles I took cuttings in July and September, which being planted in pots, in fresh, light, undunged earth, outlived the winter under the shelter of a hot-bed frame, or an airy glass-case, with *Ficoides*, &c. and flowered handsomely in April and May, the succeeding spring.

204. Is the *Leucoium incanum majus multiplex*, *flore albo*, *Tourn*. Great hoary Stock Gilliflower, with a double white flower.

205. Is the *Leucoium majus incanum multiplex flore purpureo*, *C. B. P.* Great hoary Stock Gilliflower, with a double purple flower

206. Is the *Leucoium flore pleno, ex albo et purpureo variegato*, *Hort. Eltb*. Double Stock Gilliflower, with a double purple and white variegated flower.

207. Is the *Leucoium majus incanum flore roseo pleno*, *Boerb. Ind. Alt.* Great double rose-coloured Stock Gilliflower.

208. Is a feminal variety of the former plant.

209. Is the *Leucoium majus incanum, flore coccineo*, *Morif. Hist.* The great hoary Stock Gilliflower, with a crimson flower, named the Brumpton Stock.

210. Is a feminal variegation of the former plant.

211. Is the *Leucoium album odoratissimum, folio viridi glabro*, *C. B. P.* Great white Wall-flower.

212. Is the *Leucoium majus, flore intus luteo, extus ferrugineo*, called the Raven Wall-flower.

213. Is

213. Is the *Leucoium luteum vulgare*. Common yellow Wall-flower, C. B. P.

214. Is the *Leucoium purpureum*, C. B. P. Purple early Stock.

215. Is the *Leucoium rubrum*, C. B. P. Early red Stock.

From the seeds of all those plants, I have raised many fine double sorts of extraordinary beauty. Their culture I managed in a manner particular, whereby I lost none of them in the severities of our winter weather; and which I here would presume to describe to the curious, as numbers perish in winter by the severities of the season, for want of the management I am now to prescribe. They are all of them biennials, except the ten weeks stock, therefore, instead of sowing them in March, or April, I always sowed them in the middle of July (when it was about full moon) and especially when I was sure I had got a parcel of very good seeds upon which I could depend. I further observed, that from what of those seeds I gathered myself, and which I took only from the single flowers that had seven, eight, or ten petals or flower leaves; if I preserved those seeds in their pods for one year, after gathering and sowing them the second year, I had more double flowers than if I had sown them the first year after they were ripe: My reason for sowing them in July, was, that, to sow them early, I must expose them to the winter's frost, which from many repeated experiments, destroyed my crops of flowers, and disappointed all my expectations. Therefore, so soon as they had seven or eight leaves, which was about the tenth of September, I transplanted them into boxes and large pots as thick as they could conveniently be planted; and upon the approach of the winter storms, I removed them into the pine apple summer beds, or into hot-bed frames, covering the glasses in great frosts with mats, to preserve these seedlings, which I planted in a sandy, light, fresh, undunged soil; and by this method, when most of my neighbours had their whole stocks of those flowers destroyed,  
mine

mine were entire, and in good health: I also observed to give them as much air in mild weather as was possible: and towards the middle of April, having first inured them to the open air, I transplanted them into nursery-beds of the same soil, at eight inches asunder, plant from plant: Of the doubles I planted many in pots, and I took cuttings off them from their branches, planting them in a shady situation, which in five weeks, I transplanted into pots, or into the borders of the flower-garden: Those in pots I have kept many years in bloom and vigour, renewing my cuttings every year to preserve them, observing always to take those cuttings from the branches of the plants which bore no flowers, and giving them some shelter in winter, The singles I threw out; but semi-doubles, or those plants, whose flowers had six, seven, eight, or more flower leaves, I suffered to seed, but never sowed seeds of my own gathering oftener than once, choosing rather to exchange their seeds with those which came from abroad, because of my own seeds being apt to degenerate: I used the same method with all the wall-flowers, which succeeded to my wishes and best expectations, by which means I had always a fine succession of those beautiful flowers, which, when in blossom, much adorned, and elegantly filled with their fragrant smell, my rooms, court-yards, greenhouse, and wherever I chose to dispose of them.

216. Is the *Lupinus sativus flore albo*, C. B. P. Garden Lupine with a white flower.

217. Is the *Lupinus silvestris flore luteo odorato*, C. B. P. the common yellow Lupine.

218. Is the *Lupinus cæruleus angustifolius elatior Raii Hist.* Narrow leaved blue Lupine.

219. Is the *Lupinus peregrinus major flore incarnato*, Hort. Lugd. Great foreign Lupine with a flesh coloured flower, commonly called the Rose Lupine.

220. Is the *Lupinus silvestris flore purpureo, semine rotundo, variegato*, J. B. called the Lesser blue Lupine.

221. Is the *Lupinus prereginus major villosus cæruleus*. Great blue Lupine.

222. Is the *Lupinus minor perennis Virginianus repens*, *Morif. Hist.* Smaller blue creeping *Virginian* Lupine, which is perennial.

All these sorts of Lupines are annuals (excepting the last; they should be sown in a dry soil, and in patches of the borders of the flower garden; the tallest sorts should be tied up to proper supporters, in case of winds, whereby their great flower stalks, and heavy heads of seed vessels, may be broke: They continue a long time in flower in summer and autumn; but if you design to have good seeds, plant them early in a warm border, and tie up their stalks to support them; and so soon as their seed vessels appear on the first stem, cut off all lateral branches, by which means these plants, having but one stem of pods to maintain, will ripen their seeds sooner in autumn, than those which are always flowering and endeavouring to produce seeds, which they cannot do, by the number of their lateral branches of flowers that are incessantly coming out; they do not prosper if transplanted.

The last sort is a perennial plant, which will prosper very well, and bear many flowers, if it is allowed to remain in the places where it was first sown; it agrees best with a dry light soil, where it will annually produce fine spikes of blue flowers, but it does not perfect its seeds in this country.

223. Is the *Marjorana Chetica origani folio villosa, satureii odore, majoribus corymbis albis*. Hairy Candia Marjoram, with an origany leaf, and large round tufted white heads.

This is a plant which grows naturally in the *Levant*, and in very great quantities about *Smyrna*, from whence I had a quantity of seed sent me from a correspondent there, but never produced seeds in this country; it is the best of all the Marjorams; for if it is required, you may have it at any time in winter, when you plant it in pots in a light fresh soil, the better to protect it from the injuries of our winters; it must be sheltered

ed in the most airy part of our green-houses in winter, so as it may not be drawn too much, which is as prejudicial to it, as if it had no shelter at all; and it must have new earth in *May*, little water in winter, but a good deal in summer.

224. *Malva Bœtica flore albo*,

225. Do. *Flore roseo*,

226. Do. *Flore incarnato*,

227. Do. *Flore rubro*,

Are all seminal varieties of the Candy Mallow; they are all annuals, and should be sown in *March* on a light fresh soil, and when they are two inches high, may be transplanted into the places where they are to remain: If they are sown in *July*, they will stand the winter colds well enough, and will flower larger, and feed better than those sown in the spring.

And here I think it necessary to speak of the *Lavatera's*, although they come nearer to the *Alcea's*; but as I had no opportunity of treating of them there, I do it here. They are all of them annuals, and I would advise them to be sown in pots in autumn, and sheltered in winter; and by the middle of *May*, they should be taken out of the pots, and planted in the open ground, where they will flower early and strong, and ripen their seeds much better than those which are sown in the spring. You may sow them both in autumn and in *March*, for a succession of flowers. The most of the *Lavatera's* are botanically named, *Lavatera Africana*, *flore variegato*, or *African Lavatera*, with a stript flower.

228. Is the *Malva orientalis erectior*, *flore magno saepe-rubente*, *Tourn. Corr.* Upright Eastern Mallow, with a large red flower.

This is the prettiest of all the mallows, making a great show with its fine red flowers in the middle of long borders with other flowers; it requires the same culture with the other sorts.

229. Is the *Malva Sinensis erecta*, *flosculis albis minimis*. Upright *Chinese* Mallow, with small white flowers.

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230. Is the *Malva foliis crispis*, C. B. P. the curled leaved Mallow.

231. Is the *Malva folio variegato*, C. B. P. the variegated leaved Mallow.

These are annuals, and require the same culture as the other Mallows.

232. Is the *Matricaria foliis elegantissimè crispis, et petalis florum fistulosis*, Tournef. Feverfew with elegant curled leaves, and the flower petals fistulous.

233. Is the *Matricaria flore pleno*, C. B. P. Double flowered Feverfew.

The seeds of these plants should be sown in *March*, and should in *May* following be transplanted into borders, with balls of earth about them; they may be also increased, by parting their roots in the spring; but then it is not proper to allow them to seed, for that weakens their roots; therefore, when the plants have done flowering, those you intend to increase by off-sets should be cut down.

234, 235, 236, 237, 238, 239, 240, 241, are all seminal varieties of the *Medica Cochleata*, or Snail Trefoil. For the odd appearance of which plants, no good garden should want them; and as they require little culture, there is no trouble except in keeping them clear from the weeds about them: They should be sown in warm dry sandy soils in *April*, and about ten days after they are sown, must have water given them to hasten their germinating; if they are sown in wet ground, it will make their seeds burst and rot; they should be thinned, if sown too thick, to the distance of a foot, plant from plant, as they creep much, and by all means be kept clear from weeds; they flower in *June* and *July*, and will soon after perfect their seeds, which have odd appearances, and must be laid in a dry place until the spring.

242. *Melilotus Italica* is the *Melilotus Italica foliculis rotundis*, C. B. P. Italian Melilot with round small leaves.

243. Is

243. Do. *Flore violaceo* is the *Melilotus major odorata violacea*, *Morif. Hist.* Commonly called sweet Trefoil.

244. Do. *Minor* is the *Melilotus corniculis reflexis repens vel minor*, *C. B. P.* Smaller creeping Melilot.

These plants are all annuals, and should be sown on a warm border in *August*, which will make them flower earlier in the year, and stronger than those plants which are sown in the spring; but as those seeds arrive in winter, in *Britain*, from abroad, it will be proper to sow them early in the spring in a good soil, and on a moderate hot-bed; they should be thinned, if sown too thick; but they should not be transplanted, whereby their flowering and seeding would be postponed for some weeks; but allowing these plants to remain where they are sown, they will flower soon, and perfect their seeds early; when the seeds fall on the ground, run it over with a small rake, to cover them, and the seeds will soon come up if it is rainy weather; they will endure the winter, and flower and seed early: This method I used for all such plants as required rather to be sown in autumn than in the spring.

245. Is the *Myagrum Monospermum latifolium C. B. P.* Broad-leaved one Grain Gold of Pleasure.

This is an annual plant; the best time of sowing its seeds is in *August*; and when the plants are once sown, they will sow themselves, if you allow their seeds to drop; spring-sowing of those seeds does not do so well, they often failing to germinate at that season; keep the plants, when they appear, clear from weeds, and thin to a foot distance, plant from plant, which is all the culture they require.

246 and 247, are plants, which, by these names in the *Dutch* catalogues, I know not; but this I know, that there are millets; all which are annuals, which require to be sown in *April* on a light sandy warm soil, and should be kept clear from weeds, so soon as they appear above ground, which is all the culture they require.—Their seeds are good for making puddings.

248, 249, 250 and 251, are all-feminal varieties of the *Jalapa*, but not of the *Jalapa officinarum*, or *Jalapa cathartica*, that plant being now found by the late ingenious Doctor *William Houston*, to be a species of the *Convolvulus*. But to return to the culture of this plant, called in the *Dutch* catalogues, *Mirabilis Peruviana*, I used the following method, which by experience I found to exceed all others that I had tried: Having procured good seeds of those varieties, I sowed them in *April* upon a moderate hot-bed; and when they were four inches high, I transplanted some of them into pots in a light, rich, sandy soil, and some of them into a warm border, inuring those in pots by degrees to the open air in *June*; and those which I planted in beds upon a very warm border, I always tied their branches up to reeds, to prevent the winds from dashing, waving, or breaking them: By this method they will flower late in the year; but the first year's flowers are not much to be regarded. So soon as the frost has pinched their stalks and flowers, take their roots carefully out of the pots, and borders, keep them all the winter among dry sand, in a place where no manner of frost can get at them, and the succeeding *March* plant them into pots, which must be sunk into a moderate hot bed of tan bark, observing in good weather to give them air, that they may not be too much drawn, which would spoil their blossoms; by *June* you may take them from the hot bed, setting them for ten days in the green-house, or for want of one, in a shaded place, but not under the dropping of trees. When you take them in to the shade, water those you intend to keep in pots, giving new earth to them as far in the pots as you can, without touching their main or top roots; those you intend to plant in borders, should have much water the evening before you transplant them, that the whole ball of earth may come out of the pot with them; then transplant them into pits made in the borders, and fill the pits up with the same earth as in the pots: They are one of the noctiflorous plants; for as soon as the sun's rays are gone off them, they

they expand their blossoms, and shut them again when his rays shine upon the plants; the seeds must be carefully looked to every day when they begin to ripen, they being very apt then to drop; and were they to fall, they might spring in autumn, and be thereby destroyed in winter: It is best to save seeds of the variegated kinds, they seldom degenerating from their variegations. The plants, by this management, will rise to be four feet high, and daily produce new flowers, until the frost pinches them; and notwithstanding their roots will continue some years, I would chuse to sow their seeds annually.

252. Is the *Moldavia Betonica folio flore albo* Tournesf. Turkey Balm, with a betony leaf and a white flower.

253. Is the *Moldavia orientalis salicis folio, flore parvo cæruleo*, Tourn. Corr. Eastern Moldavia with willow leaves and a small blue flower.

254. Is the *Moldavia orientalis Betonica folio flore magno violaceo*, Tourn. Corr. Eastern Moldavia, with a betony leaf and a large violet flower.

The first and second sorts are annuals, and sometimes biennials, and should be sown in March on a border, in a very warm situation of fresh light earth; after they come up, they may be transplanted into the borders of the flower garden: They flower in June and July, and ripen their seeds in August; some of their seeds may then be sown in a warm situation, where they will endure the cold of our winters very well; but pot these seedlings, and they will be out of danger.

255. Is the *Nardus Bobemica flore albo*, the white flowered Bohemian Spikenard.

256. Is the *Nardus Austriaca flore cæruleo*, blue Austrian Spikenard. Both those plants grow in Germany, they should be sown in autumn, or in the spring, on a light fresh soil, and they may be increased by parting their roots in March: There is no great beauty in them.

257. The most beautiful of them all, is the *Nardus orientalis flore variegato*, the variegated flowered Eastern Spikenard; it requires the same culture.

258, 259, 260 and 261, are all feminal varieties of the *Nasturtium Indicum* or *Acriviola*. They are all annual plants, and should be sown in March in a good garden soil three feet distance, plant from plant, putting two seeds in every pit where you sow them; they are great creepers, and will, in good fresh earth, continue in bloom from June until the frosts kill them; and may be sheltered in winter, by planting cuttings of them in summer in pots, and these cuttings will flower in winter. Their seeds when half ripe make a good pickle.

262. The name given this plant which they call *Necanthemum*, is such as I have not heard of before in any botanical author; I do not know to what genus to apply this heteroclite name, of which I know no meaning; and it was to correct these blunders in the *Dutch* catalogues, which induced me to undertake this work, however unsuccessful I may be in this one article; for when I sowed the seeds of this odd named plant for two years, and once more in a hot bed, it did not come up, so I know nothing of the plant either by its name or appearance.

263. Is the *Nicotiana major latifolia*, C. B. P. Greater broad leaved Tobacco.

264. Is the *Nicotiana major rotundi-folia*, C. B. P. Greater round-leaved tobacco. The culture which I used for those plants to have them in their greatest perfection was thus: In *March* I prepared a hot-bed of dung, and sowed them upon it, so soon as I perceived the violent heat of it was over; and when the plants were two or three inches high, I transplanted them into another moderate hot-bed, where I suffered them to continue until their leaves were meeting, at which time I planted them into a heap of my richest compost, or such earth as I prepared for my melons, and cucumbers, three feet, row from row, and two feet, plant from plant, lifting them with large balls of earth; while they

they were in the hot-bed, I inured them to the open air, and gave them plenty of water when they seemed to require it: In *August* they prepared to flower, at which time I cut off their tops that their leaves might be better nourished; and by the end of that month cut them quite down for use, otherways their leaves would have failed and lost the crop.

265. Is the *Nigella flore minore albo pleno*, C. B. P. Fennel Flower, with a small white double flower.

266. Is the *Nigella flore majore cæruleo pleno*, C. B. P. Double blue fennel flower, or Devil in a bush.

These plants should be sown in patches, where they are to remain in the borders of the flower-garden in *March*, and watered and kept clear from weeds, which is all the culture they require.

267. Is the *Ocbrus folio integro capreolos emittante, femine pullo*, C. B. P. Winged pea with an entire leaf, sending forth tendrils and a brown seed.

This plant should be sown in drills, very thin in the rows, three feet row from row, and should be hoed up as pease, and kept clear from weeds, and when they spire to flower, should be propped up by sticks, whereby they will ripen their seeds better than if they lay on the ground.

268. Is the *Ornithopodium scorpioides, siliqua compressa*, *Tournef.* Caterpillar Birds-foot with a flat Pod.

These plants should be sown in patches in *March*, on the borders of the flower-garden, and are fit companions for the snail, and caterpillar plants, as they require the same culture.

From the 269 to the 278, are the seminal varieties of the *Papaver hortense*, or garden poppy; and from 278, to the 285, are the seminal varieties of Corn-poppies, or the *Papaver erraticum*.

These should be sown in *March* or *April* in patches, or among the borders of the pleasure-garden, and should be thinned, the good flowers kept for seeds, and then pulled up quite with their roots, otherways they breed vermin about their roots.

285. Is the *Pelecinus vulgaris*, *Inst. Raii Herb.* Common Pelecinus.

This plant should be sown early in *April*, in a light fresh earth, cleared from weeds, and if too thick, should be thinned; when they seed, their pods make a pretty appearance, being serrated on both sides. To have them seed well, I would have them sown on a moderate hot-bed in *March*.

286. Is the *Persicaria orientalis, nicotianæ folio, calice florum purpureo*, *Tournef. Corr.* Eastern Arsesmart with a tobacco leaf and a purple flower cup.

These plants should be sown in autumn, when their seeds are ripe; transplant them in the spring in the borders of large gardens, allowing them much space; for no plant will thrive under the drop of their great leaves.

287. Is the *Phaseolus flore coccineo*, *Morif. Hist.* Red-flowered Kidney Bean.

288, 289, and 290, are all feminal varieties of this plant; they should be planted in *April*, in a dry soil in dry weather, and keeping them clear from weeds is all the culture they require; the first sort I planted in large tubs, and putting a long wooden stake in the middle of the earth, and from that tying as many strong pack-threads to the inside of the tub, as I had planted beans, their tendrils run up upon the threads, and when they were in flower they made a fine show.

291. Is the *Lycopersicon Galeni*, *Ang.* Yellow Love Apple.

292. Is the *Lycopersicon fructu cerasi luteo*, *Tourn.* Love Apple, with a yellow cherry-shaped fruit.

293. Is the *Lycopersicon Galeni, fructu rubro*, *Boerb. Ind.* Love Apple, with a red fruit.

295. Is the *Lycopersicon fructu cerasi rubro*, *Tourn.* Love Apple, or *Pomum amoris*, with a red cherry-shaped fruit.

Those plants should be sown on a moderate hot-bed in *March*, and when they are two inches high, should be transplanted into another moderate hot-bed, shading them until they take new root; and I took care to give them

them much air in mild weather: In *June* they may be transplanted into pots of good garden mould, shading them until they take fresh root, when, giving much water, they will flower and fruit admirably. Some people plant them from the second hot-bed into the open ground, upon a moist rich soil, where they will thrive well, provided their branches are tied up, which would otherways break by the weight of their fruits.

295. Is the *Ptarmica flore albo pleno*, *Clus. Hist.* White double flowered Sneezewort.

296. Is the *Ptarmica flore purpureo pleno*, *Boerb. Ind.* Purple double Sneezewort.

Those plants make a fine show when they are planted in pots, where their roots are confined, for in good ground their roots spread too much; they do well also in gravelly borders, where they will make a pretty show: By cramping their roots they flower best.

297. Is the *Reseda folio calcitrapæ, flore albo*, *Morif. Hist. Blasf.* Bastard Rocket, with a star thistle leaf, and a white flower. There is another *Reseda Ægyptiaca, flore luteo odoratissimo*: introduced into our *Scots* gardens by Mr. *Pat. Drummond*, late seedsman in the *Lawn-market, Edinr.* where this and many other curious flower-seeds and flower-roots may be had; I have, near the end of this work, given the culture of this odoriferous plant, which is also called the *Mignon d'Ægypte*, or *Minionette*.

The first mentioned *Reseda's* should be sown where they are to remain, in *March*, on a bed of fresh undunged earth, keeping them clear from weeds, and thinning them, if sown too thick, to six inches plant from plant.

298. Is the *Ricinus Americanus, caule virescente*, *H. R. P.* The greater *Palma Christi*, with green stalks. This plant should be sown in *March* upon a moderate hot-bed, and when they are two inches high, may be transplanted, with a good ball of earth, into pots, in *April* into another hot-bed, taking care to shade them, until they are well rooted; as they grow very quickly, they will require soon two penny or three penny pots; then

then forcing the shell which covers the hole at the bottom of the pot out with a small stick, they will come out easily, earth and all together; then plant them into the big pot in fresh light earth, shading and watering them until you perceive they grow again, and giving them in good weather as much air as you can, by which means they will be fit to be set out into the open air with myrtles, oranges, &c. about the middle of *June*, which should be done in a warm place, well sheltered from winds, which, because of their large leaves (which make a good appearance) are very prejudicial to them: In *October* remove them into the green-house, with oranges, &c. where they will flower and perfect their seeds. When they are set abroad in the common air, I tied their stems to small green wires, to preserve them from the injuries of the weather, whereby I have had them eight feet high in stem by the second year of their growth.

299. Is the *Scabiosa altissima annua*, *foliis agrimonie nonnihil similibus*, *H. L.* the tallest annual scabious, with leaves like agrimony

The 300, 301, 302 and 303, are all seminal variations of the same plant; those sorts I always (contrary to the practice of many) chose to sow in the end of *July*, so as that before winter they might be transplanted into the borders of the pleasure-garden, where they will be strong plants to endure the winter severities, and flower much better the succeeding year than those which are sown and flower the same year; and as it is a dry season commonly when they are sown, I sowed them on a shady and moist soil, to hasten their vegetation, otherwise they will often fail. The sorts here set down in the *Dutch* catalogues are what I used, especially the *Scabiosa prolifera*, or childing scabious, because of its very uncommon appearance, and the strong musky flavour they emit, for which reason they are called Musk Scabious.

304. Is the *Scandix Cretica major*, *C. B. P.* great Shepherd's Needle of *Crete*. Their plants should be sown in *August*, where they are to remain; and keeping

ing them clear from weeds is all the culture they require.

305. Is the *Scorpioides bupbleuri folio, corniculis asperis in se convolutis*, Moris. Hist. prickly Caterpillar.

306. Is the *Scorpioides bupbleuri foliis, filiquis levibus*, Park. Theat. Bot. smooth podded Caterpillar.

307. Is the *Scorpioides filiqua crassa, Boelii* Germ. Emac. thick podded Caterpillar.

These plants should be sown in beds or patches of the borders of a flower-garden, where they are to remain, because they do not agree with transplanting; and when they come up, they should be thinned, if too thick, to one foot, plant from plant, and be kept carefully and constantly clear from weeds, which is all the culture they require.

308. Is the *Scolymus Cbrysanthemus annuus*, H. R. Par. annual golden Thistle.

309. Is a feminal variegation of the former plant.

These plants should be sown where they are to remain in a fresh soil in *March*, and kept clear from weeds, and thinned to two feet, plant from plant.

310. Is the *Sesamoides parva Matthioli*; Matthiolus's Bastard Sefamum, or oily Grain.

These plants should be sown and forced in hot-beds, as was directed for the amaranths, otherways they will not perfect their seeds in this country.

311. Is the *Campanula arvensis erecta, flore albo*, Inst. R. Herb. upright *Venus* Looking-glass, with a white flower.

312. Is the *Campanula arvensis erecta, flore cæruleo*, Tourn. upright *Venus* Looking-glass, with blue flowers.

Those plants I sowed at three different times in the year, in *March* and in *April* to flower that season, on a bed of light fresh earth, keeping them clear from weeds, and giving them water in very dry weather; as also, about the middle of *August*, to flower early the next spring, as they endure the severities of the winter very well,

well, and by which means their flowers will be larger, and their seeds better.

313. *Stachys agria, folio majore laciniato*, greater Base Hore-hound with deep-cut leaves. I chose to sow the seeds of this plant in pots in June, and to keep them in winter in the green-house, as the frosts are very hurtful to them. In the spring following, when I transplanted them into the open ground, and supported their stalks; they blossomed and seeded very well.

314. Is the *Tblaspidium annuum, flore pallide luteo*, *Inst. R. H.* annual Bastard Mithridate Mustard, with a pale yellow flower.

This plant should be sown in August, in a poor, dry, warm situation, to stand the winter, whereby they flower early and perfect their seeds, which, if allowed to fall on the ground, will produce a plentiful crop of plants next season: They must be kept clear from weeds. You may also sow some of them in pots in case of a very severe winter, whereby they may be sheltered under a frame, or in the glass-case.

315. Is the *Tblaspi Creticum, quibusdam flore rubente et albo*, *J. B.* Candy Mithridate Mustard, with a reddish and a white flower.

316. Is the *Tblaspi Alpinum, folio rotundo carnosso, flore purpurascente*, *Inst. R. Herb.* Mithridate Mustard of the Alps, with a round fleshy leaf, and a purplish flower.

317. Do. *Flore violaceo*, Violet-flowered Alpine Mustard.

318. Is the *Tblaspi Lusitanicum umbellatum, folio gramineo, flore albo purpurascente*, *Inst. R. Herb.* Portugal Mithridate Mustard, with a flower in an umble, and of a white and purple colour.

319. Is the *Tblaspi parvum saxatile, floribus aureis*, *C. B. P.* small Rock Mithridate Mustard, with a gold-coloured flower.

320. Is the *Tblaspi saxatile orientale, floribus aurantii coloris, foliis poligulæ, petalis florum æqualibus*, *Tourn. Cor.* Eastern Rock Mithridate Mustard, with  
Milkwort

Milkwort leaves, and an orange-coloured flower, whose petals are of an equal length.

321. Is the *Tblaspi Virginianum*, *foliis Iberidis amplioribus ferratis, odoratis*, *Inst. R. Herb.* Virginian Mithridate Mustard, with leaves like the *Sciatica* Cress, ferrated and well scented.

All these plants are annuals, and their seeds should be sown in *March* upon a dry soil; and keeping them clear from weeds, and watering them in dry weather in summer, is the best culture you can give them.

322. Is the *Tordilium Narbonense minimum*, *Inst. R. H.* small Narbonne Hartwort.

323. Is the *Toidilium minus limbo granulato Syriacum*, *Moris. Plant. Umbellif.* small Hartwort of *Syria*, with a granulated border.

These are annuals, which should be sown in autumn, and be kept clear from weeds, which is all the culture they require: You may sow the last sort in pots to be sheltered in winter.

324. Is the *Trifolium lagopoides birsutum angustifolium Hispanicum, flore ruberrimo*, *Moris. Hist.* hairy narrow leaved Hares-foot *Spanish* Trefoil, with a very red flower.

325. Is the *Trifolium orientale altissimum caule fistuloso, flore albo*, *Tourn. Corr.* the tallest Eastern Trefoil, with a hollow stalk and a white flower.

The first sort makes a fine appearance with its pretty scarlet flowers; it is an annual, and should be sown in *March*, and kept clear from weeds, or they may be sown also in autumn, in pots for winter shelter, and for early blossoming and seeding.

The other sort may also be sown in autumn, and makes a very good appearance, and should be cleared from all weeds: Both these sorts I had in great perfection by autumnal sowings.

326. Is the *Mays*, or *Indian* Wheat. There are many feminal varieties of this grain, which differ only in the colours of the grain. These are generally sown upon a hot-bed, and in *June* are planted out into a rich border, where they are to remain and ripen their seeds, which

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which come to little without this method of forcing them; you must keep them clear from weeds, and give them water in dry weather, which is all the culture they require.

327. Is *Polemonium vulgare cæruleum*, *Tournef.* Greek Valerian with a blue flower.

328. Is the *Polemonium vulgare album*, *Tournef.* Greek Valerian with a white flower.

329. Is the *Polemonium vulgare flore variegato*, *Tourn.* Greek Valerian with a variegated flower.

The seeds of these plants should be sown in *May* in a good garden mould, and will stand the severities of our winters very well, and in the succeeding *March*, should be transplanted into the borders of the flower-garden, where they will make a very pretty show; the first sort flowers early.

330. Is the *Valerianella Cretica fructu vesicario*, *Tourn. Corrol.* Candy Corn Salad with a bladdered Fruit.

331. Is the *Valerianella semine in umbello crescente, hirsuto majore Morisf. Hist. Plant. umbellif.* Corn Salad, with a large hairy umbellicated feed.

The seeds of these plants should be sown in autumn, as they are hardy, and be kept clear of weeds, is all the culture they require, for they will grow in almost any situation.

332. Is the *Verbascum Alpinum perenne nigrum, flore albo, flamineis purpureis, H. R. Paris.*

333. Is the *Verbascum fæmineum, flore luteo magno, C. B. P.* Female Mullein, with a large yellow flower.

The seeds of these plants should be sown in autumn, as they are very hardy, and in the subsequent *March* may be planted out, where they are to remain; but they do not agree with being often transplanted.

334, 335, 336, 337 and 338, are all seminal varieties of the *Vicia* or Vetch, which agree with the culture given to garden pease in all respects.

339. Is the *Viola tricolor hortensis repens, C. B. P.* Pansie's Heart's Ease, or three-coloured Violet. Although this plant is said to be annual, yet, when it is allowed

allowed to scatter its seeds, it will continue itself ; but they must be kept within bounds, otherwise they will spread too much. There is a great variety of them. Observe to take off-sets from the best sorts of them : For, although they do not keep to the colours of their mother plants, they are improved by this management, as I have often experienced.

340. Is the *Vulneraria pentaphyllos*, *Inst. R. H.* Five-leaved Woundwort. The seeds of these plants should be sown in *March*, in fresh light earth, and in that place where they are to stand, must be kept clear from weeds, and should be thinned, if they are too thick sown, which is all the culture they require.

341. Is the *Urtica Romana*, or *Roman Nettle*. This plant should be sown in *March*, in a hard gravelly soil, and will prosper in any situation.

In following the numbers of the catalogue, I come now to treat of those plants which flower the second year after they are sown, and are therefore called biennials.

The 342d they most erroneously name *Acarua Theophrasti* & *Plinii*, whereas the true name of the plant, is, *Acanthus sativus vulgaris*, seu *mollis Virgilii*, *C. B.* the smooth-leaved Garden Bearbreach, mentioned by *Pliny* and *Theophrastus* : The seeds of these plants should be sown in *March* upon a bed of rich light earth, and should be kept clear from weeds ; and the year after, they may be transplanted into the beds where they are to stand and flower, which is the only culture they require ; or you may sow them upon a moderate hot-bed in *March*, to bring them on soon.

343. Is the *Astragalus Alpinus procerior Alopecuroides*, *Tourn.* taller Foxtail Alpine Milk-vetch.

The seeds of these plants should be sown in the beginning of *April*, upon a bed of fresh light earth, putting a very thin covering over them, and in *June* following, may be transplanted into the borders of the flower-garden at a good distance, to allow them a large space.

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344. Is

344. Is the *Aquilegia flore variegato*, Columbine with variegated flowers.

345. Is the *Aquilegia Virginiana*, the *Virginian* Columbine with variegated flowers.

The seeds of those plants should be sown on a bed of fresh earth in *March*, and in dry weather, should be moderately watered: In the beginning of *July* they may be transplanted into a nursery-bed of the same soil, where, if they attempt to flower, nip off their blossoms, and in *March* following, plant them either as edgings to the borders of summer flowers, or upon the beds, allowing some of them to continue in the nursery-bed, to see their colours; and, if good, throw away the bad ones in the borders, and supply their places with the good ones from your nursery-bed; transplant and divide their roots in the end of *July*, and trim their long fibres, but do not divide their roots too much. I always sowed these plants once every two years, but not of my own seeds, but of those which came from *Holland*, whereby I had many new varieties.

346. Is a species of the *Lapathum*, or Burdock; but when names are given, which no botanical authors treat of (at least the modern ones) it is impossible to guess what species of a genus of plants, or what plant it is.

347. Is the *Cbenopodium lini folio villosa*. *Tournef.* Flax-leaved Orach: called Belvidere.

These plants may be sown in the autumn, or early in the Spring, and when they are two inches high, should be transplanted into pots or borders; when they are full grown, they make a very pretty pyramidal bush to adorn rooms; they are very hardy, and sow themselves; when in pots, they should be often watered.

348. Is the *Lunaria perennis siliqua rotundiore, flore albo*, *Tourn.* great perennial Honesty, or Moonwort, with a rounder pod and a white flower.

349. Is the *Lunaria major siliqua rotundiore argentata*, *J. B.* the larger Honesty, with a rounder pod silverised; it blows a strong blue flower in *April* and *May*.

These plants should be sown in autumn, soon after their

their seeds are ripe, and in *June* following, they will flower, and perfect their seeds. Their seed-vessels make an old appearance. Some persons cut them with long stalks, and put them in pots or chimnies during the winter.

350. This plant will be treated of amongst the *Piper Indicum*'s. But as it is perennial, it cannot be kept well in winter without a temperate heated stove, where it thrives and fruits very well. Most of the other kinds of *Capicum*'s being annuals, I thought proper to give the curious this caution concerning the culture of this plant here.

351. Is the *Caryophyllus barbatus bortenfis latifolius, flore variegato, Boerb. Ind.* The broad-leaved sweet *William*, with variegated flowers.

These plants are best propagated by seeds, which should be sown in *March* on a bed of rich light earth, and in *June* should be transplanted into beds at eight inches distance, plant from plant, and in *March* after, you may plant them out into the borders, or use them for edging to the borders of the pleasure-garden, where, if they are of the right kinds, they will make a very pretty show.

By this management of their seeds and seedling plants, anno. 1749, I raised in my garden a plant of the whole podded double *Sweet William*, of a finer colour than *Fairchild's Mule*, and mixed with a black fimbriation round the inside of the uppermost petals. These plants put into pots in a fresh light soil, make a pretty appearance in the windows or chimnies of rooms in summer. The seeds from which I raised this plant, I purchased from Mr. *Patrick Drummond*, late seedsman, in the *Lawn-market* in *Edinburgh*, who had every year an excellent collection of admirable flower seeds, as well as kitchen-garden seeds, and is succeeded by Messrs. *Anderson* and *Whyte*.

352. Is the *Clinopodium Virginianum angustifolium, floribus luteis amplissimis purpureis maculis notatum, cujus caulis, sub quovis verticillo decem & sæpe duodecem foliis purpureis circumcinctus est. Banisterii Pluck Phytol.*

*Tab. 24.* Narrow-leaved *Virginian Field Basil*, with the largest yellow flowers spotted with purple.

This is a pretty showy plant, The seed should be sown upon a very dry warm soil, and is hardy enough; though in case of extreme hard weather, I had some of them in pots, the better to preserve them from the rigour of our hard winters; you may sow them upon a moderate hot-bed.

353. Is the *Carlina acaulis magno flore*, C. B. Carline Thistle without stalks, and a large flower; some plants of these have white flowers, and others have purplish flowers.

The seeds of these plants should be sown in *March* upon a bed of fresh undunged earth, and should be kept clear from weeds, and thinned, if sown too thick; they flower the second year after sowing, but do not agree with transplanting.

354. Is the *Colutea orientalis, flore sanguinei coloris, lutea maculea notato*, Tourn. Corr. Eastern Bladder Senna, with a blood coloured flower mixed with yellow spots.

The seeds of this plant I always sowed in *March* on a moderate hot-bed, and in *May* transplanted them into pots, sheltering them in Winter in an airy case, and gave them fresh earth in the spring of the succeeding year, by such culture they flowered and seeded well.

355, 356, 357, 358 are all seminal varieties of the *Digitalis*, or Fox-glove. These plants should be sown in *March* on a bed of a very poor dry soil, and kept clear from weeds: The second year they will flower well, provided they are not planted upon too fat ground, which rots them.

359. Is here erroneously named the *Digitalis Virginiana* which at first induced me to sow it in the same way I did the others, but the winter killed it quite; I found it to be the *Digitalis Canariensis acantoides frutescens, flore aureo*, Hort. Amstelodam, Shrubby Canary Fox-glove with a golden flower.

The seeds of this sort I sowed in *March* upon a hot-bed of tan-bark, and in six weeks after transplanted them

them into pots of fresh and very sandy earth, and sunk the pots into this bed to make the plants take root the sooner; which when I perceived, I exposed them in a warm place with other exotic plants, and sheltered them in a green-house in winter, where they should be kept free from all frost, and giving them in *May* following some fresh earth about their roots, I exposed them to the open air in *June*, with Myrtles, Oranges, &c. where they flowered to great perfection, it being one of the prettiest plants which adorns a green-house, and makes a fine show when in flower. I gathered ripe seeds of it also.

360. Is the *Geranium Batrachoides, gratia Dei Germanorum, C. B. P.* Cranes-bill with a crow foot leaf, and a large blue flower.

361. Is the *Geranium Batrachoides, gratia Dei Germanorum, flore variegato, C. B. P.* Cranes-bill, with a crow-foot leaf and a striped flower.

The seeds of those plants should be sown in *March*, and in the succeeding spring may be early transplanted into the borders of the flower-garden, where they will flower and seed very well, and make a good variety amongst other flowers of their season.

362. Is the *Horminum orientale folii. ramosis et verrucosis angustis, flore albo, Tourn.* Eastern Clary with rough and narrow warted leaves and a white flower.

Their seeds may be sown in *March*, and kept clear from weeds, and transplanted into the flower-garden the succeeding spring, where they will flower and prosper well.

363. Is the *Cytisus Aspinus latifolius, flore racemoso pendulo, Tourn.* Broad-leaved Laburnum or Bean Trefoil.

The seeds of this tree should be sown in *March*, and may be covered with an inch only of good garden mould, and often watered in dry weather. The Plants will appear in six weeks time after sowing, when they must be kept clear from weeds; here they may continue until the *March* following, when they should be transplanted into a nursery-bed by themselves, at the

distance of three feet, plant from plant; be sure always to keep them clear from weeds in the nursery: They may stand for three years, when they may be planted out where they are to remain. It seems odd enough, that amongst annual and biennial flowers, the *Dutch* should insert the seed of this tree in their catalogues; but as it has a fine flower, which in *May* makes a pretty show, perhaps has induced them to insert it. The flowers of this tree, are said to be very prejudicial to bees, by purging them.

364. Is the *Lathyrus perrenis latifolius major*, C. B. Broad-leaved common everlasting Pease.

This should be planted or sown near high walls of houses, because of its rampant growth, to which its long branches should be fastened.

365. Is the *Lathyrus lati-folius perennis minor*, flore majore, Boerb. Ind. Broad-leaved lesser perennial everlasting Pea, with a larger flower.

Both those sorts should be sown in a border as our common garden pea, and be kept clear from weeds, and in *March* following, transplanted where they are to remain. This second sort grows only to five feet high, and has a fine large flower. Of this sort I have seen the white flowered kind at Mr. Young's garden at the Water of *Leith*.

366. Is already treated of amongst the *Leucoiums*.

367. Is the *Lychnis coronaria Dioscoridis sativa*, flore rubro veluti flammeo fulgens, C. B. P. Rose Campion, with a flaming red flower.

This plant, when propagated from seeds, should be sown in *March* upon a bed of light fresh earth, and be kept clear from weeds: You may, in *June*, transplant them into a nursery-bed, at seven inches distance, shading and watering them gently and often, until they have rooted, and that you perceive them to begin to grow again: In *March* following, you may transplant them into the flower-garden, where they are to continue; and keeping them always clear from weeds, is all the culture they require.

368. Is

368. Is the *Lychnis coronaria floribus variegatis*, or striped flowered Campion: This requires the same culture. Of this sort particularly I had the double flowered, which was much valued. Mr. *Patrick Drummond* late seedsman, whom I have often mentioned, had the seeds of the painted Lady Rose Campion, which agrees well with the culture of the other Rose Campions.

The 369, 370, 371, 372, 373, 374, 375, 376 and 377, are all feminal Varieties of the *Malva hortensis rosea*, or Holly-hock.

The seeds of these plants should be sown upon a bed of fresh earth the beginning of *April*; having before sowing watered the earth, and then covering it with an inch of the same mould, and keeping them clear from weeds, in *March* following, I transplanted them out into the borders, where they were to remain and flower. Their flowers, when going off, and their stalks decaying, I immediately cut close to the ground; nor do I approve of transplanting them, but this once, from their seed-beds, because of their long-topped roots: I always sowed these seeds once every two years, for a new succession of plants when the old ones failed, which seeds I always chose to have from abroad.

378. Is one of the species of the *Abutilons*; but I distinguish it from other species of the same genus, by the name here given it in the *Dutch catalogues*, *Abutilon Mexicanum*.

379. Is the *Moldavica Americana trifolia odore gravi*, *Tourn.* three-leaved *American Moldavica*, with a strong scent, commonly called *The Balm of Gilead*.

The seeds of these plants should be sown in *March* in a hot-bed, and when two inches high, should be planted in small pots each plant, and placed again into a hot-bed, where they may continue till *June*, and afterwards be set in the air, and in *October* they should be brought into the green-house, and put as near the open air as they can, and in mild weather should have all air given them. They are also propa-

gated by cuttings in any of the summer months, and they will take root in three weeks time, by which means they may be continued, when the old plants fail.

380. Is the *Papaver Indicum perenne*, *flore magno rubro*, Indian great Poppy. This is a perennial plant; it should be sown in patches, where it is to remain, and keeping it clear from weeds, is all the culture it requires. This plant affords plenty of seeds annually.

381. Is the *Coronopus maritimus roseus Baconi*, *Rar. Plant.* Rose-like Sea Buckthorn Plantain.

The seeds of this plant should be sown in *March*, on a border of fresh earth, and kept clear from weeds; and if their seeds are suffered to drop upon the earth, there will be plants enough.

382. Is the *Scabiosa perennis Sicula*, *flore sulphureo*, *Boerb. Ind.* Perennial Sicilian Scabious, with a sulphur coloured flower.

The seeds of these plants should be sown in *March*, on a bed of light earth, and should in *June* be transplanted, where they are to remain for good, and be kept clear from weeds: Some of them may be planted into pots, to flower in rooms and to be preserved in winter: And this method you must use with them; for in winter, and in the first year of their growth, they are very apt to die.

383. Is the *Santolina flore majore*, *foliis villosis et incanis*, *Tourn.* Hoary-leaved Lavender Cotton, with a larger flower.

These plants are propagated from seeds sown on a lean gravelly soil; they are also propagated by cuttings, which in a little time will take root, and both they and the seedlings may be planted into pots, to adorn balconies: They are very hardy plants and endure the winter well.

384. Is the *Tythimalus latifolius*, *Cataputia dictus*, *H. L.* Broad-leaved Spurge, called *Cataputia*.

The seeds of this plant should be sown in the end of *April*, on a border of fresh earth, where they are to remain, and be kept from weeds; the second year they

they will flower and seed in autumn, which, if allowed to sow themselves, will furnish abundance of plants.

The 385, 386, 387, are already described under the article *Valeriana*.

388. Is the *Vicia supra infraque terram edens*, Tourn. Eatable Vetch, having pods both above and below ground. This is an *African* plant originally, and has been long cultivated in the *East Indies*. I planted the seeds in large tubs of good earth, and placed them in a tan hot-bed, that they might have room to grow both above and below ground, which they cannot do, when they are confined in the narrow bounds of pots; and without this practice, the plants will not ripen their seeds, which are indeed a very extraordinary production of nature.

389. Is the *Campanula vulgatior, foliis urticæ vel major et asperior, flore duplici albo majore*, Boerb. Ind. large Nettle-leaved Bell-flower, with large double white flowers.

390. Is the *Campanula vulgarior, foliis urticæ, vel major et asperior, flore duplici cæruleo*, Hort. Reg. Parisien. Large Nettle-leaved Bell-flower, with a large double blue flower.

The seeds of these plants, which are but semi-double flowers, should be sown in a bed of very fine rich sandy earth in *April*; in *July* they may be transplanted, where they are to remain for good, should be kept quite clear from weeds, and be watered at planting, to settle the earth to them; they will endure the severities of our winters very well. But if they offer to flower the first year, their stems should be cut down to the leaves, and the second year they will flower, and some of them will seed well.

Some of these I planted in pots, to have them blossom early in rooms. Their common name is the *Viola Mariana*; they are sold in pots in *May* and in *June*, at *Rome*, to adorn their chambers.

391. *Vulneraria rustica*, F. B. Rustic Woundwort Kidney Vetch, or Lady's Finger. These seeds should be sown in *March*, and should be kept clear from weeds, and they will stand the winter very well, and will flower and seed well the succeeding season. I

I come now to treat of those seeds, which in the *Dutch* catalogues, require to be sown on hot-beds; and they are those:

392. Is the *Abutilum Indicum*, *flore aurantii coloris*, *J. B.* the *Indian* Abutilon, with orange coloured flowers.

The seeds of this plant must be raised on a hot-bed, and afterwards transplanted into pots, or borders of good fresh light earth; and it being an annual plant, will flower and ripen its seeds; to have which in perfection, the pots should in *August* be removed into the green-house.

The several sorts of *Amaranthus*, together with the *Amaranthoides*'s, have been fully treated of under the article *Amaranthus*, in the beginning of this catalogue of seeds, so needs not here to be repeated.

402. Is the *Althea Americana*, *floribus aureis*, *American* Mallow, with gold coloured flowers.

This plant is propagated by seeds, which must be sown on a hot-bed in *March*, and should afterwards be potted and inured to the open air, where it will flower well.

403. Is the *Bidens trifolia Americana*, *Leucanthemi flore*. *Tourn.* Three-leaved *American* Hemp Agrimony, with a greater daizy flower.

The seeds of this plant should be sown in *March*, upon a hot-bed, to bring the plants forward, and then planted out either into pots, or into warm borders, where they will flower, and perfect their seeds very well; but I prefer planting them into pots.

404. Is the *Cannacorus*, *flore luteo punctato*, *Tourn.* the yellow spotted *Indian* Reed.

405. Is the *Cannacorus*, *flore coccineo splendente*, *Tourn.* the fine scarlet *Indian* Reed.

The seeds of those plants should be sown in *March* upon a good hot-bed, and the plants when they are come to some strength, should be planted into pots of fresh light earth, and be again placed with the pots in a fresh hot-bed: When they are first taken out of the  
hot-

hot-bed, they should be set in the green-house, and afterwards be placed in a warm situation, and free from winds: They will attempt to flower the first year, but those may be cut off, in order to strengthen their roots; the second year they will shew their grand bloom; in winter they should be placed in the green-house, giving them little or no water; in *March* transplant their roots into large pots, put them into a hot-bed to forward them, and afterwards take them out, and use them as in the former season; but when they are coming to bloom, if you put them into the green-house or in rooms, they will blossom fairer than those do which have no shelter at all.

406. Is the *Stramonium Malabaricum fructu glabro, flore simplici violaceo odorato, Tourn.* Malabar Thorn Apple, with a smooth fruit, and a single violet coloured sweet scented flower, commonly called the *Dutro of the Persians*.

There is another kind of this *Stramonium*, viz. *Stramonium Malabaricum fructu glabro, foliis latioribus nervosis, flore magno.* Great Malabar Thorn Apple, with a large white flower. This plant may be sown on a hot-bed in the spring, it will flower and ripen its seeds very well in the open air, but if it is housed, the flowers will be larger.

The seeds of those plants should be sown on a hot-bed, and the plants when come up should be treated in the same manner as is prescribed for the amaranthus, to force them on, otherwise they will neither flower nor perfect their seeds.

407. Is the *Ficoides Africana, plantaginis folio undulato, micis argenteis asperso, Tourn. Ac. Reg.* African Ficoides with a waved plantain leaf, covered over with silver drops, commonly called the *Diamond Ficoides*.

The strange appearance which this plant has of clear large drops of substances like ice, upon its leaves and stalks particularly, gives it a merited place in every collection of plants.

The seeds of this pretty plant should be sown in *February* in pots, put into a hot-bed, and in five weeks after they will come up, provided they are sown in a dry sandy mould; when they have six leaves, they should be transplanted into pots filled with the sandy mould, and again put into a hot-bed, until they become large plants; but as soon as you perceive them to branch out and spread, the pots with the plants should be taken out of the beds, and put into the green-house for ten or twelve days, as near the windows thereof as you can, to inure them to the air.

Some of them you may keep in pots, where they will flower and seed better, when their roots are confined, than those which are taken out of the pots and planted in the garden, which will spread a great way, and shew the spangling of their crySTALLINE-like matter upon their stalks and leaves: But observe, when the plants are in pots, and designed to flower and perfect their seeds, that you do not suffer their roots to come out at the holes of the pots, for if they reach the earth upon which the pots are placed, they would grow and prevent the plants from flowering or seeding; therefore set those pots upon stone pavement, or upon bricks, and it makes them fly up into seeds soon. A friend of mine had from eight plants of those *Ficoides*'s in pots, a vast quantity of seeds, so surprising that I could scarce credit so small and so few plants could produce so much seed. His method was this: After the plants had been planted for some time in the pots, and were prospering and growing, he put them upon a lead battlement on the top of the house, well exposed to the sun; the reflection of which on the leads, made the plants grow well, and their being curbed in growth of leaves, by being confined in pots, drove them to flower, and to perfect their seeds, in a much greater degree than if they had been in any garden. This I mention for persons who are desirous to have many seeds of these plants.

I have

I have kept them also over winter, by planting their cuttings in *August* or in *July*, ten days after I had taken them off their mother plants; and when their wounds at the amputations were dry, I potted them in very dry sandy mould, placing them in the greenhouse in the most airy place, or into the glass-case, which I mentioned and described formerly in this work; but at the same time preserving them from all manner of frost, and giving them very small quantities of water. These plants flowered the succeeding year much better than those which were sown the same season, and from those plants I obtained good seeds.

408. Is the *Lacbrimæ Jobi*, *Clus. Hist.* Common Job's Tears. The seeds of this plant should be sown on a warm border of fresh earth in *March*, at six inches distance, seed from seed, and should be kept clear from weeds; this plant is named *Coix* by Doctor *Linnaeus* Professor of Botany at *Upsal*, in *Sweden*.

409. Is the *Melongena spinosa fructu rotundo croceo*, *Tourn.* Mad Apple, with a round saffron coloured fruit.

410. Is the *Melongena spinosa fructu oblongo violaceo*, *Tourn.* Mad Apple, with a long violet coloured fruit.

There is now a kind of it called the *Melongena Americana fructu albo oblongo*, or Egg Plant, from the resemblance which the fruit of this plant has to an egg; the culture of which is the same with the other *Melongena*'s; observing, if you keep it in the stove, or in a window within the glass, it will become very large, and will there ripen its seeds well.

I sowed the seeds of those plants upon hot-beds in *March*, and in *April* transplanted them into another hot-bed, at six inches distance from one another, giving them good and frequent waterings, and gave them all the air possible in mild weather; by the beginning of *June* they had quite filled this bed; then having a bed of good rich earth, in a warm situation of the garden, I lifted them with large balls of earth, and planted them into pits made for them, shading and watering

tering them until I perceived they had taken new root, keeping them clear from weeds. As soon as their fruit appeared, I gave them great plenty of water, without which they will not fruit.

411. Is the *Ocymum minimum*, C. B. P. commonly called Bush Basil. This requires precisely the same culture, with the *Melongena*'s; and when they come from the second hot-bed, may be planted to adorn rooms.

412, 413, 414, 415, 416, 417, 418, 419, and 420 are all seminal varieties of the *Capficum Indicum*, or *Guiney Pepper*. They require the same culture which has been prescribed for the *Amaranthus*. Their fruit either in pots, or in the open ground, make a fine variety, hanging upon the plants in autumn, and in winter.

Thus have I given the botanical description and *Englisb* names of all the flower-seeds in the *Dutch* catalogues, and my own practice in their culture: By which means persons who have these catalogues from *Holland*, or the catalogues of annual or biennial flower-seeds sold in our seed-shops, may make a choice what seeds to buy, the better to produce a fine show of Annuals in the summer and autumnal months.

*Carnations.*

THE next principal flower to the vernal flowers, which shews itself with splendor, is the *Carnation*. Much has been wrote of this flower by many authors, but none of them have treated of it to such good purpose, as my very ingenious and worthy friend Mr. *Philip Miller*, intendant of the apothecaries physick-garden at *Chelfea* near *London*, in his *Gardeners Dictionary*, article *Carnation* or *Caryophyllus*. Wherefore, what I shall say of it, shall be only a few general directions concerning its culture: One article, with respect to the soil, you must certainly observe; never to use for it the ground wherein hyacinths have been planted; they, from certain experience, being a sure poison to the *Carnation*, *et vice versa*.

In this country we are not so fond of the bursting podded carnations, as we were some years ago; and instead thereof, we have got the whole podded sorts, which either blow without much trouble in pots, or in the open ground, because the earwigs are not so fond of the whole podded flowers, as they are of the bursters: However, it makes a better show to blow them in pots, and upon a proper stage, than to blow them in a careless manner in the open ground; the best soil for them is a light loamy earth three parts, and a half of very well-rotted cows dung, and as much of fine white sand, provided your earth is not sandy; but if there is sand in it, then to three parts of this earth add one part of well-rotted cows-dung; this earth should have been dug eight inches deep only below the surface, with the sword; it should be laid to rot twelve months before it is used; should be mixed with the dung for six months, and should be often tossed up to incorporate the better before it is put to use: If you cannot get cows dung, take the bottom of an old melon or cucumber bed. The curious persons who blow this flower, chuse sometimes, or alternately, to blow these flowers in earth mixed with cows dung, and in earth mixed with old rotted horse dung, because (say they) if they are always planted into one kind of earth, they

they do not blossom so well: This may be so; but my practice, whereby I had very fine flowers, both of the bursters, and of the whole podded sorts every year, was thus.

I had always two layers of every kind which I purchased, and planted them in *August* or *September*, into three half-penny pots filled with a light undunged fresh earth, and covered them in winter with a hot-bed frame and glasses: In sunshine or good weather, I took off their covers, missing no opportunity to give them fresh air: In these pots the layers continued until the beginning of *March*, when I planted one of them into a pot filled with the compost before-mentioned, and the other I planted out in a bed of undunged fresh earth, and took layers from the same, whenever they were fit to lay down, (which operation is so well known, that I need not mention it); but at the same time, I allowed the mother plant only to show one flower, to be sure that it was right, and then nipped the flower quite off; nor did I allow these plants to show any more flowers, that they may be employed only in nourishing their layers, and not to expend their strength in blossoms; and in *August*, I took off their layers which were better nourished from these mother plants, which are not allowed to flower, than they could be from plants which blossomed strong and long for show; besides, these layers being bred in a lean soil, when in *March* following they are planted into rich earth, will become very luxuriant, and show a larger flower, and better by far than those which are produced in a strong soil in pots, or which come from plants which blossom there for show, and in the same strong soil wherein their off-spring of layers must blossom.

Thus much in general I have treated of the carnation. Their other managements are become so trite and common, that it is needless to say more about them. When you intend to raise pinks from cuttings (which is a good and easy method) put the cuttings in good rich earth, cover them with bell glasses, and in sunshine cover these with mats; but be sure never to take the bells off your cuttings at any time, except when watering, for it is the common air which rots those cuttings. *Bul-*

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*Bulbous Iris.*

THE next showy flower to be treated of, is the *Iris*, or *Flower de Lys*, or *Fleur du Lys*; and they are of two sorts, the narrow-leaved or *Spanish*, *Botanice*, the *Xyphion angustifolium*, and the *Xyphion latifolium*, or *English Iris*, named in the *Dutch catalogues*; the first, *Iris Hispanica*, and the latter, *Iris Anglica bulbosa*: The great varieties of which have been obtained by the florists from seeds they have sown, and is thus performed.

Having provided yourself with good roots from the *Mynbeers Voerbelms* and *Van Zompel*, florists at *Haerlem*, plant them in *October*, in such a situation of the garden, as they may have sun only till eleven forenoon, keeping them free from weeds, and planting the roots three inches below the surface of the earth, which should be light, fresh, sandy, and very moderately dunged; but if your ground is fresh and rich in its nature, you will need no dung mixed with it: To hinder the roots from running down, it should be beat hard two feet below the bottom of the bulb: For, like the *Jonquilles*, they delight to run with their long fibres far below where they are planted, whereby their bulbs become long, and produce no flowers afterwards, especially if they are planted in clay soils, or where they have very much sun. When they come to flower, mark such as you chuse to save seeds of, which, by all means, must have long bold stems; for from those (by experience) come the best flowers. When their seed-vessels become dry and begin to open, cut them over, rub them out, and prepare for sowing: What flowers you do not incline to gather seeds from, cut off their stems to the ground when their flowers fade. Make ready boxes, twelve inches deep, three feet broad, and six feet long, with many holes bored in them, covered with concave oyster-shells, to allow the water to pass off. In *October*, sow these seeds in rows, two inches, row from row, and half an inch, seed from seed, because therein they are to remain for two or three years: The soil for them is, four parts of good, light, fresh

C c

earth,

Earth, the same as is prescribed for carnations, one part of good, light, white, dry sea-shore sand, and one part of well-rotted cows dung: Let the situation be to the South-east, not very near to a wall or hedge: Let these boxes have wooden folding covers; but from *March* cover them not, and in hot sun put up a parasoll, not to cover, but to shade them from its rays, and water them when their leaves are up, but do not water them when their leaves are down. At that season take off two inches of the uppermost earth in the boxes, and add fresh earth to them; if extreme frosts happen, lay two inches of old rotten tan-bark over them. Thus you may use them, until the third year that you lift them out of their boxes: Then plant them into a border of the same aspect and mould with these beds that are prescribed for the old roots, and the fourth or fifth year they will blossom in perfection: What are good, you may bring into the flower-beds, for showing their flowers by themselves; and what are ordinary flowers, may be planted into the long borders of common flowers in the flower-garden. They need not be transplanted but once in three years, laying new mould over them at *Michaelmas* and *March* every year.

*Lilies and Martagons.*

*The Lilies are the*

White Lily of Constanti- nople	Broad-stalked white Lily Semi-double white
Striped flowered white and purple	Striped-leaved single white Striped - leaved double white
Spotted white and purple	Many - flowered Orange Lily
Largest double white	Bulb-bearing Lily
Orange Lily	Double-fiery Lily.
Dwarf Orange Lily	
Semidouble Orange Lily	
Striped-leaved Orange Li- ly	

All these lilies love a lean, fresh, sandy, undunged soil: For if they are planted in a rich dunged soil, they are apt to rot. The striped-leaved white lilies make a pretty

pretty show in winter with their beautifull variegated leaves. The striped-flowered white lily, in order to have it in perfection of bloom, requires a very lean rubbishy soil, and an exposure whereon the sun shines only until ten forenoon: Many of these lilies should be planted in the long and cross borders of the flower-garden, for embellishment; but to supply those, it will be proper to have nurseries of them in fit places of the garden.

*The Martagons are these :*

- |                         |  |
|-------------------------|--|
| 1 The Imperial          | stantinople                                    |
| 2 The white             | 11 The lesser do.                              |
| 3 The white-spotted     | 12 The yellow                                  |
| 4 The double            | 13 The Ash-coloured                            |
| 5 The Canada            | 14 The Flesh-coloured                          |
| 6 The red-spotted       | 15 The striped-flowered                        |
| 7 The long-spiked       | 16 The very late flower-<br>ing Constantinople |
| 8 The greatest American | 17 The striped - leaved<br>Martagon.           |
| 9 The Pompony           |  |
| 10 The Polyanthos Con-  |  |

The Canada, *Pompony*, and greatest American Martagons, are more tender than any of the other sorts, and should be planted deeper in the long borders of the flower-garden; or if they are planted in quantities, and in nursery-beds by themselves, they should be covered in winter, to prevent injuries from frost, of which they are very susceptible.

The other sorts are very hardy in respect of cold, and prosper best in a fresh, light, undunged soil, especially the stripped sort, nor should they be lifted but once in three years.

The *Gladiolus*, or Corn-flags, require the same culture; the most valuable of which are the flesh-coloured, the white-flowered all around its stalk, and the great *Gladiolus* of Constantinople.

The great *Indian Gladiolus* is a green-house plant, and consequently not treated of here.



*Colchicums.*

I Have treated already of the vernal or Spanish purple Colchicum: The other sorts require the same culture, and shew best, when they are planted in clumps of flowers in long borders: The best sorts are early, the white, the purple, the two double sorts, the yellow sort (which, more properly speaking, is an autumnal narcissus, though it is reckoned by the Dutch florists among the species of their colchicums,) and the Colchicum Chinese, or Chios Colchicum. They should not be transplanted oftner than every third year.

And here I must not omit another autumnal narcissus, named in the Dutch catalogues, *Narcissus autumnalis Liliaceus*, which is named properly, *Narcissus autumnalis major, flore Liliaceo*, the great Lily Daffodil of the autumn: its culture being the same with the other colchicums, I need not here repeat it; and when it is planted with clumps of colchicums in borders, it has a very good effect.

The *Dracunculus*, or Dragon, for its uncommon shaped great red flower, deserves our attention: It flowers in July and August; and in September, may be planted out into shaded borders of the garden, which should also be well defended from winds. Those flowers, which have their plant leaves stripped, are very pretty.

Having thus gone through the vernal, summer and autumnal, annual and perennial flowers, and their several cultures, before I conclude, I think myself obliged to give some general directions to florists, or to those persons who make the propagating and cultivating these flowers their trade and chief business; having seen so much of these matters in Holland and Flanders, I think myself so far happy, to impart to my readers, what  
may

may probably incite some curious gardeners to follow the same trade, wherein, if they are careful and curious, I am very certain they will find sufficient encouragement; more especially as the taste for flowers in general, and for Hyacinths, Oriental Narcissus, Tulips, Anemonies, Ranunculus and Auriculas in particular, prevails more within these few years, than it did at any time formerly.

An adventurer, in order to have his flowers in perfection, must necessarily lay out a good sum, before he can pretend to get in a shilling, or be reimbursed; and to gain a profit thereby, must be a work of time. He must spare no cost to purchase the best flowers; and if he should take a trip to Holland and to Flanders, to see and observe their methods of cultivating their flowers, it would be well worth his trouble and expence.

The first thing necessary to be considered is the soil and situation, where should be plenty of cows dung, sand, and tanners bark, and of a dark, grey, sandy, virgin soil. These materials properly used, and well mixed, comprehend the best composts necessary for cultivating all the different kinds of bulbous flowers, (of which I have treated) in their several respective proportions described in the directions for managing them.

Such a garden should not be less than three Scotch acres, and may be subdivided with cross walls; at least there should be one wall to divide the nursery-garden from the great garden: In this nursery the flowers are raised from seeds and from off-sets; and this garden may occupy one acre of the ground, and the flower-garden two acres, wherein the flowers will blow in perfection. They should be surrounded with good high walls, for nothing but walls is a sufficient fence for them, and they may be subdivided by yew hedges, which in such places, are better than any other hedges whatever; you may also use holly hedges, but by no means thorns; horn-beam will do well too, but their roots, as well as the ever-green oaks spread too much. This spot of ground should lie flat, but not wet, and be

well exposed to the south-east, south and south-west rays of the sun, and should be protected, as much as can be, from the west, north and east winds, by large trees at one hundred feet distance every way from the walls ; and if there can be had a pond or basin of water in any part thereof, so as that this water may be well exposed to the sun, it will be a very great advantage ; for water impregnated by the sun's rays, excels any other water, which has no sun at all, and is by far better for watering flowers, or any plant whatever.

The next great article is a compost yard, the situation of which ought also to be well exposed to the sun, that thereby the several composed earths may imbibe all the nitrous particles of sun and air, and should be also as near the flower-garden as possible, for the convenience of wheeling or carrying the composts, as they may be required ; and this compost yard must be hedged in with a good fence ; the space of ground to be occupied by the same, cannot be less than two acres ; here must be a good piece of ground left for tan-bark, where, separated from any other compost, it may rot well, and that some of it be always laid there, both before and after it has been in use, covering the flower-beds especially Hyacinths, Oriental Narcissus and Persian Ranunculus, whose beds it should not only cover four inches above the surface, but should also be laid two feet beyond the ends of their beds, four inches thick, to prevent all frosts coming to these roots that way, and without which there is no method to prevent frosts from affecting or infecting the bulbs and fibres of these flower-roots in hard winters : The pots into which ranunculus should be planted, ought to be twenty inches deep. However, as I said, when treating of the culture of ranunculus, you may plant most of them in beds of compost, as directed to be prepared for them, and some of the finest you may have in pots sunk into the ground two inches below their brims.

Nor would I mix this tan with any compost in that yard, although it was old and quite well rotted, because it is not every flower root that agrees with it in its proper compost; to ranunculus, auriculas, and anemones it is very hurtful; with polyanthos narcissus it agrees very well; and here I must be indulged to treat of the management of tan bark, in the culture of this flower, the Polyanthos Narcissus.

Several gentlemen complain that those roots never blossom fair with them, but in the first spring season after they come from Holland, their off-sets flower no better than their mother roots. This complaint may be very true, but I am sure it is the fault of the proprietors of these roots, and their fault only, that there are occasions for such complaints; for I have had numbers of these roots which the first spring season after I brought them from Holland, carried some nine, ten, some fourteen bells of flowers upon a stem, and the next year, and for six, seven and eight years after, as their roots increased in bulk, carried seventeen, twenty, twenty-four flower-bells of most extraordinary beauty, as large and fragrant as ever I saw in Holland or Flanders in their best gardens;—— and this was owing to the culture I gave them, which was thus:

The year before I received these roots from Holland, I took a great quantity of fresh, sandy, black-coloured earth if it was not as sandy as I wished it to be, I added a fourth part of good white sand; to this heap I added a third part of old well rotted cows dung, and a fourth part of well-rotted tan; and having taken out the natural earth, to three feet in depth, I filled this pit up with this compost, laying eight or ten inches thick of pure, very old, rotted, and well-moulded tan-bark, which must be only six inches from the bottom of the narcissus' bulbs, and into which their long fibres went with pleasure.

I planted their bulbs five inches deep, and, in very hard winters, covered the tops of their beds with three or four inches of tan to keep off all frosts. Some of

these bulbs I lifted the first year after planting, especially if they had made off-sets, (and most of them had two or three) replanting them again in *October*, in new earth of the same composition; and their off-sets I planted in the same manner in the nursery-garden, but did not lift them until they were fit to be planted in the great flower-garden with the old roots; and I am sure, if these gentlemen complainers would use these roots, as is here prescribed, there would be no causes of complaint: For they must have a light, fresh, and rich soil, if you would have them prosper; and without this care, you will never have good flowers, or any flowers from their roots worth notice; and to this neglect is owing whatever complaints one hears from the proprietors of these and of the hyacinth roots, especially when these directions prescribed for their culture are not followed.

If you observe these oriental narcissus' to have no off-sets, you may let them remain in the ground for two years; but when they do not off-set, I am certain it is owing to the unskilful preparation of the soil wherein they are planted; therefore, they should be lifted, in order to replant them into mould more proper for them, wherein they will give abundance of off-sets.

If your ground is well prepared, and you observe off-sets upon your roots, and want to have them very large, you may suffer them to remain in the ground; but, in *November*, give them a covering of two inches of rich and strong kitchen garden mould; and in *December*, cover them with four inches of old-rotted tan, which will preserve them against all dangers of frost.

I have wrote this here purely for the pleasure of a few friends, who complained to me of the misfortune of these flowers under their care. I hope they will apply this culture to them; and I am quite sure they cannot want success.

In the great flower-garden, a good florist must build a proper root-room, and off from that in the same range

range, a good handsome chamber or two for his own convenience, that, when his flowers are in bloom, or when his roots are in the root-room, he may lie in those chambers to take care at nights of his goods there.

This root-room may be long and broad at the pleasure of the proprietor, and in height according to his fancy: There should be windows in the end to the west, and in the north and south sides; and the east end should have a large strong door, wide enough to take in and let out great boxes or chests of roots packed up, as they arrive: And in this root-room, there should be shelves on the two sides by the windows from top to bottom, on which there should be placed drawers, divided as you see proper, to hold the different sorts of tulips, hyacinths, ranunculus, anemonies, and polyanthos narcissus: And upon these drawers, and upon their several divisions, should be pasted, written or printed paper labels, telling the names of the flower-roots contained in every division or apartment of these drawers; and this root-room should be placed in such a situation, that it should not be too much exposed to the sun, nor should the sun be altogether excluded from it; the afternoon rays are proper enough for it: The place where the anemonies and ranunculus lie, should be near a fire, in case of violent frosts in those months only before they are planted, and to exclude all frosts from them, which would injure or rot their roots before they are planted in the ground.

I would desire my readers also to take notice, when I advise the best Persian ranunculus to be planted into pots, filled with proper compost at planting season, I mean that those pots, and the ranunculus in them, should be sunk two inches below the surface of their beds, and should be covered also with one inch of mould. The reason why I direct them to be planted rather in pots than in the open ground, is, that their kinds may be more distinctly preserved, that they may off-set better, and that no mole or any other vermin  
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may throw them out of the ground, or otherwise harm them. The drawers in this root-room should be only five inches deep, that the roots may lie single therein, and not in heaps, or one above another, and they should be very close at bottom, but as airy above as may be, that the air and wind may have free access to them; and upon these shelves and drawers, there should be folding leaves of wood, and cases trelaced with wire for air, and well locked, to exclude too busy hands. The windows of this root-room should have fixed iron bars, and strong shutters to bolt or lock at night.

The compost-yard should be very near the flower and nursery-garden: The latter is a place designed entirely for seedling flowers and off-sets of flowers, where they are to be brought up, until they are fit for show and sale in the flower-garden: And in the root-room there should be a compter, and all conveniencies for packing roots, the same as in any shop.—

There are some persons who will object to the compost-yard being too large, and that too much ground is idly employed there. To which I answer, that considering the dung, sand, virgin earth, and tan required for such a garden, all which at proper seasons must be spread and laid out in breadth, for better rotting and moulding them; and that in mixing these several materials up into their different compositions, it will require a good space of ground to work them to purpose, and it will be found there is no more ground in this compost-yard than what is necessary. And here I cannot omit informing my readers of something particular, I observed the Dutch florists were very careful of in their compost-yards, *viz.* In that place where they laid their cows dung, either when it was brought there from the pastures, or from their cow-houses, I remarked, that they had the bottom of their compost-yards, paved with stone very close, or floored with bricks: Upon my desiring to know their reasons for such work, they told me it was to preserve the sap, or rather substance, and best parts of the dung from going

ing down into the earth where it was laid, and which could be of no use to them, if it thus passed into the earth, but would be quite lost, as the refuse, gross, and the most useless parts of the dung was left to them, and the true salts of the dung was drained off, by running into the earth, but there being a close pavement below, kept these saline particles all about the dung, which kept it full of salts, strong, good, and fit for their purpose: This I approved of, and was indeed a specimen of that care, for which the Dutch are famous; and further to satisfy myself, if my compost, which I used for these flowers was good, I sent for some Dutch composed earth, weighed their compost and that which I made here, and if I found mine equal in weight, of the same quantity with theirs, I was then sure my compost was of a good consistence; and for that purpose, I kept a measure of, and a standard conformable to that measure of the weight of the Dutch compost, to be sure of the weight, and of the goodness of the compost I made here for my flowers. Thus a good florist should never want three years compost lying by him, and their different heaps should, at making up, be distinctly marked with long poles, bearing their names marked or painted in letters upon them: Such as *Auricula* to auricula compost, *Ranunculus* to ranunculus compost, and so on through all the other composts in their order. And a florist should have one part of his different composts at work; for example, for *anno* 1753, the two subsequent years compost, *viz.* 1754 and 1755, should be making and preparing,—and it is supposed he is amending his composts which were at work in 1751 and 1752.

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# DISSERTATION

On the CULTURE of

## FOREST-TREES.

**T**O publish a treatise of this kind, after so many volumes have been written on the subject, is certainly a daring attempt. To repeat what has already been said on that subject, must be tedious: to make new discoveries, may in some measure be thought impossible; but to publish one's own practice, when attended with success, is commendable.

In agriculture, the most necessary of all arts, and which requires our greatest attention, the knowledge of the farmer is mostly founded on experience. His office is practice, and he seldom meddles with theory or speculation. If his labour is attended with success, he looks upon his practice as unquestionably right; and never considers, that the alteration of climate and soil may so much vary the culture, that his method, though, in one part, attended with the greatest success, may, in another, prove of the worst consequence. Thus theory and practice, though both necessary, yet often widely differ, and give occasion to those valuable researches of inquisitive minds, who confirm their theory by practice and establish facts formerly unknown. Of this disagreement,

agreement, many instances occur in the books wrote on husbandry and gardening, and not a few by writers on the culture of Forest-trees, one instance of which I shall here copy from the latest author who has wrote on that subject. In speaking of the beech tree he says; "There is another way of managing this, and all other trees, that I think may, if begun in time, be better than pruning; and that is, by rubbing off in the Spring time, the buds from the sides of the trees, since by checking the sap's breaking out on the side, it forces it to rise up to the top of the tree." If this advice was to be implicitly followed, experience has taught me, that we should have very few trees worth cutting, because if some of their lateral buds (I do not say all of them) are not left upon the tree (which in a few years will produce small branches, which attract the sap to make the trunk of the tree grow to sustain its top) there would be little or no attraction of the sap for those purposes from the root. In this instance practice is joined to an infallible rule in nature, and openly contradicts this theoretical prescription.

The methods of bringing corn and kitchen-garden stuff, with other annual productions, to perfection, are better and more equally known than the culture of Forest-trees. At the beginning these productions are often defective, but a longer experience brings us nearer and nearer to perfection. The gardener and the labouring man find it their interest to make their soils yield as much as they can, and one would think, that the same inclinations would possess every man who has woods and forests; and yet nothing is more certain, than that the culture of those is little known, or, if known, very much neglected.

Woods and Forest-trees are a present given to us by nature, and as such we receive it; but the profits being at a distance, and no immediate return to be expected; experiments have been seldomer made than upon corn, and garden herbs; and to this inattention we owe that ignorance and inexperience so common, of preserving our woods, or increasing them.

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I would not however be understood to insinuate, that what I am to lay down is quite new, or what was never before practised by the public; on the contrary, I have known them practised by many, and their success, as well as my own for forty years and upwards, engages me to recommend it to all. To that success I appeal; I claim no other praise; I court no other merit, so I shall proceed to direct you how to raise trees in woods from seeds, and how to manage them afterwards, until they come to be cut down for use, to the greatest advantage.

It is the opinion of many persons, that before they begin to plant their trees in the wood-way, they must make large nurseries to fill these grounds from the seed beds. According to those directions they must be transplanted from the seed beds into the nurseries, and from the nursery into the woods, where they are to continue till the ax cuts them down. In support of this rule they further say, that every time a tree is transplanted, it acquires a new set of fibres, whereby it sucks more juices than trees which have not been transplanted. This rule I own seems very plausible at first; and I myself followed it for some time, till I found by experience its falsity. What induced me principally to follow this practice, is that certain rule in agriculture, that the more we cultivate the earth, and dress it, the more it gives us; from whence I argued, that the best method to prepare ground for Forest-trees, was to dress and clean it well before I sowed the seeds; but this rule, though universally given, has its exceptions. With respect to the kitchen-garden, it holds for legumens, and roots of all kinds, which are the produce of a day, and are gone to-morrow; but in forests and woods, time and experience taught me another rule, for the more I digged, the less I reaped.

I shall first show the faults I committed in planting my woods; and next how I amended them, and what my success was. As the trees I transplanted in or near my gardens had not the desired success, I therefore immediately resolved to sow great pieces of ground in the wood itself with tree seeds. This I did with great care.

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In most of these plantations I took out all the Junipers, Broom, Brambles, with every other plant that I thought would be hurtful to my young trees ; I spaded and laboured the ground with great care, and very deep, whereby I thought I might have great success ; but at the end of some years, I was convinced of my error, and found that extraordinary culture was the occasion of the ruin of my plants. It is usual indeed to lay out expences to gain by it ; but here the expence I bestowed was the occasion of my loss.

If therefore we should succeed in planting trees in whatever soil, we must imitate nature ; and in plain ground where Thorns, Broom or Junipers, are wanting, I would first of all sow the seeds of those plants, some years before I sowed or planted the seeds of my Forest-trees ; because those bushes protect the young trees from severe frost in Winter, and from the too great heat of the sun in Summer ; and a soil that is thus covered, or but half covered, with Junipers or Broom, affords an excellent protection for these young trees when they first come up from the seed.

In planting out some Firs I had a notable instance of this. The Firs were but two years from the seed. The beginning of *October* I planted a great number of them in a spot of ground pretty much overgrown with Whins : at the same time I planted a like number upon a neighbouring piece of ground that was entirely cleared from Whins : the effect was, that every one of these trees that I planted among the Whins, grew to great perfection, and the Firs that were planted upon the spot of ground that I cleared of the Whins, were totally destroyed by the frost of the ensuing Winter. This shows you what protection is necessary to all young planted trees, particularly Firs, of which I shall speak more fully when I come to treat of that article.

With respect to the sowing of tree seeds in woods, the following observations assured me of the success of these experiments. I had two pieces of ground, of about six acres each, sown with Forest-tree seeds ; they were both inclosed on all sides with underwood hedges, such as Thorns, Brambles, &c. planting them as close

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as I could, to save my seedling plants from the irruptions of cattle; one of these inclosures I digged very well, and sowed it in patches or pieces; one piece in the middle of the inclosure I sowed with tree seeds, another piece I sowed near to the hedges with the same; what I sowed in the middle, came up but thinly; but what I sowed near the hedges grew very well for the first and second years. I did not perceive, or did not mind the difference between what was sown in the middle, and what was sown near the hedges, until the third year. Then I observed a considerable diminution of my young plants, which were sown in the middle part of my inclosure; and I further observed in the fourth year, that by the drought of every Summer, and frost of every Winter thereafter the number of my plants was considerably diminished; and the Winter of the sixth year, being extremely severe, finished them altogether, whilst the beds or spots which I sowed in this inclosure by the sides of the hedges, were strong, healthy and vigorous, some of them having grown four or five feet high. This served to show me, that the good success of those beds which I sowed near the hedges, was owing to the cover those hedges afforded the young plants; but in the middle thereof, where there was no shelter nor protection from the severities of the weather, the plants did not grow, because they were deprived of the shelter that the other young trees had from their being nearer the hedge. To remedy therefore this inconvenience, I caused two ditches to be thrown up, crossing the middle of this inclosure at right angles, and planting the tops of them with Thorns, Brambles, Poplars, and otherwood, in form of hedges; by which means I prevented the loss of a good many of my young trees in the middle of my plantation, which I could not have effected otherwise than by planting these cross hedges to protect them.

The other inclosure I spoke of, contained six acres, three of which I dug very well, in expectation of a fine crop. The other three acres I suffered to lie as I found them, covered with Junipers, wild Thorns, Broom,

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some scantling Whins and Ferns, and other Brushwood. I sowed the best part of those two pieces of ground at one and the same time. In that piece which was not dug nor drest, I opened the upper sward, and by a thrust or two of the spade only, put in my seeds; and indeed I must own I was a little sparing of them, being very uncertain of their success. I even was scarcely at the pains to use a spade, but thrust the seeds below the Junipers with my hands, and covered them as well as I could. But in the other three acres which were dug and drest, I sowed the seeds of the trees very thick, as in my apprehension, from the labour I had used, I could not fail of succeeding. The event however was very different from what I expected. In the drest piece of ground, there came up a great number of fine young oaks, and other trees, which, in a little time after their first appearance, began to diminish; and if I had not given particular attention to them, they would have gone off altogether: while, on the contrary, the other three acres of uncultivated land, in which Broom, Junipers, with other Brushwood, grew, was a perfect wood of young oaks, and other trees, which grew to great perfection, and came in four years time to be four or five feet high. This observation shows better than the former the necessity of a cover for young trees; for those that were sown in the cultivated pieces of this open inclosure, could no otherwise be preserved than by planting among them cuttings of Thorns, Whins, Poplars, Saughs, &c. to protect them from the dangers of Summer's heat and Winter's frosts. Wherefore, to have a good wood in the fields, the most difficult thing is to find a sufficient cover for them; and to obtain that, you must allow a field to lie waste for ten or twelve years, that the Thorns, Brambles, Junipers, and other underwood, may grow up, to protect the young trees. On the other hand, in cultivated places, you must fall upon some method to make covers grow as much in two or three years, and to give shelter to the earth, and what is sown therein, as if the same had never been cultivated.

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I have made many experiments of this nature, by sowing Thorns, Junipers, &c. with the seeds of trees, but this proved all ineffectual; for many of these seeds require to lie two years in the ground before they come up, and consequently can be of no use to these young trees that come up the year after sowing. The best seeds for that purpose, are the seeds of the Marfaule, or *French Willow*, or what is botanically named *Salix Alpina, alni rotundo folio argenteo, repens*. It has round leaves, indented on the edges, and grows very quickly without any culture. In wet grounds, the cuttings of all sorts of Willows, and black and white Poplars, will grow very well; but for dry grounds, Thorns and Elders, and the above named *French Willow*, with some dwarf close growing Whins, are the best; and it is certain that the roots of this underwood will do no harm to Oaks or Beech, because the roots of these trees run farther down than the roots of the under-wood; and when these trees grow up, they choak and kill all under-wood below them.

It has for a long time been the constant practice, to make experiments to know the advantage that arises from the culture of woods and forests; and for that end I caused to be sown in my garden some seeds, of the same trees that I sowed in my woods. The first I left to nature, but these in my garden were cultivated with the greatest care and art possible; the effect was, that the Oaks I sowed in my gardens had stems eight feet high, and two and a half inches diameter at the bottom; while those in the fields had stems about the bigness of my finger, and were but three feet high; and the Oaks in my gardens had heads in eight years which served as a sufficient cover to their roots, but those in the fields had no heads to cover their roots. Encouraged by the success my trees had in the garden, I had recourse to another experiment, which was, to inclose a part of my woods, and there to bring up my trees with the same care I did in my garden; and when I found the earth was too stiff or too cold, I burnt a vast deal of the cuttings and branches of trees, and dug the earth

two feet and a half deep, making it very fine, and I mixt the ashes with the soil: but in this I found myself also mistaken; for at the end of three years my trees were rather worse than before, and I was obliged to give up the experiment.

For this ill success several reasons may be given. The first year, after dressing the ground in the manner above-mentioned, I had many enemies to encounter with, such as birds, mice, &c. and such a profusion of weeds, that I was continually obliged to be hoeing with instruments, or weeding with my hand. It was then I remembered, though too late, that gardeners, when they enter on a new spot of ground, expect but small crops for the first three years, until the weeds be intirely rooted out. But this was not the greatest inconvenience with me; I wanted water for the young plants in the Summer-time, as the continual work that was among them, in taking away the weeds, made the soil very burning and dry, and so loose, that the cold easily penetrated to their roots, and a north wind, accompanied with a severe frost, about the beginning of *April*, which was preceded by a good deal of rain, did all my plants an irreparable injury.

Nevertheless I did not give over the project, but endeavoured to remedy the evil that the frost had done me, by cutting off all the dead or dying parts of my plants: This had a very good effect, and as I had but a small quantity of water to give them, I reserved it for a more pressing occasion. I diminished the number of my weedings, lest that by often weeding I should have dried the ground too much about them. The success was this; that in *August* my plants resumed their vigour, but still were far from those which grew in my garden; I then pruned them a little, and gave them rest for that year.

Next year I gave them two weedings, and there was a piece of ground of about a quarter of an acre, which I forgot to weed at all; and this forgetfulness taught me, that these plants which had no weeding at all, grew equally well with those which were fully weeded, and  
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many of them excelled them ; from which I learned, that the more you want to extirpate weeds, and dress any spot of ground which you want to turn into woods, or forests, the more you cheat yourself ; especially in weeding trees twice a year, which besides the real inconveniencies of exposing their roots to the parching heats in Summer, and to hard frosts in the Spring following, is most expensive, without being of the least advantage to the trees themselves ; therefore, as it will be proper to substitute something in place of weeding, to enable us to attain the desired success, I know no method so proper as this, *viz.* to cut all your young trees down within an inch, or an inch and an half of the surface of the earth, slopeways, that the rain may not settle or rest upon the under part of the trees. This method, simple as it is, experience hath taught me to be of infinite advantage for accelerating, by many years, the growth of all plantations of trees ; suffer me, therefore, to give you an accurate detail of my management in this important subject.

All earth may in general be reduced to two sorts, light earth, and strong earth. If you sow in a light earth, you may dig or plough it, and the lighter the earth is, the less will be the expence ; and you may sow the seeds of trees just after the plough ; but those kinds of soils being generally burning and dry, you must not take the weeds from them the following Summer, because these keep a coolness about the roots of young Oaks and Beech, in the hot season, and hinder the hot rays of the sun from scorching them ; and when these weeds come to die in Winter, they hinder the frost in that rigorous season from piercing to their roots. In short, in a light soil, trees require little or no culture. I have sown a great many acres of this kind of ground with great success, for the roots of the young trees extend their fibres easily, whilst the rain and dews get as easily down to them, and the seeds here sown want nothing but a light cover of earth to make them succeed to your fondest wishes.

But it is more difficult to propagate trees in strong clay soils. There the labour of ploughing and digging is useless, and very often hurtful. The best method I know to sow tree seeds in such soils, is to dig pits with your spade the Summer preceding the Autumn in which you intend to sow them, that the ground may thereby be a little mellowed by the sun and air, and therein sow or plant your seeds, with a suitable cover; you must not leave them to themselves, but visit them often, observing if they have come up the first year, and the second year take notice if they have grown stronger than the first, and so the third year; and if they grow stronger and stronger from year to year, do not disturb them; but it very often happens, that after the third year they diminish in their growth, and stunt (as the gardeners term it.) In the fourth year they do the same; therefore the fifth year, in the month of *March*, cut them quite down to the ground, in the same manner I directed formerly, and they will grow again with great vigour, and save you a great number of years in their growth; for the young tree being left to itself in the strong soil, its tender herbaceous fibres cannot penetrate into the soil, the juices stagnate, which you will perceive by moss and knots growing upon the bark of its stem, and the tree itself is deprived of the nourishment it should have, whereby it produces nothing but leaves instead of growth; but when the stem of the tree is cut down, the whole force of the sap decends to the roots; they open their germes, and act with great vigour against the soil which opposes them, where, when they come, and have also established themselves in the same, they will send up a stronger shoot the first year than the former shoots of four years old which you cut away; and of this I had so many repeated instances, that I give it as an approved rule, and can assure my readers, that it is the best way to cultivate woods in clay grounds.

In a soil which is firm, without being too hard, it will be sufficient to cut the young plants once only; and

and I had a great many plantations in my own woods, planted in a clay soil, cut once only, which have made very fine trees; but in the other places, where the soil was hard and stiff, observing my trees did not grow after the second year, I then cut them down, and four years after I was obliged to cut them a second time. I shall here mention another experiment I made, from whence I found the necessity, in some cases, of cutting young trees twice.

Twenty-two years ago, I made a considerable plantation of several kinds of trees, such as Ash, Elm, Planes, &c. which I transplanted when they were pretty old. The first year after they were transplanted, those which held pushed pretty vigorously, the second year they grew weakly, and the third year they languished very much. The trees that suffered most, were those that were oldest when transplanted. I now perceived that their roots had not strength enough to support their heads, nor the shoots they had made the first year after transplanting. This determined me to cut them down; and I performed the like operation upon the smallest ones. This first cutting recovered my trees for the first two years; but in the third I perceived a great diminution in their growth, which I attributed to the inclemency of the season; but I soon perceived this was not the cause of their decay; for the two years after that I left them uncut, they still continued diminishing in growth, which determined me to cut them down a second time, without which I should have lost all my trees; for having left some uncut a second time to try them, these I entirely lost. The soil in which I planted these trees had not been cultivated for the space of twenty years before, and it is now fourteen years since I cut my plants, and their leaves are as green, and their shoots as vigorous as if they were in a nursery-bed, which is a certain proof, that the cutting down of trees is the best culture they can have in whatever soil they grow, and is the surest method to establish their roots, to which every planter should principally attend.

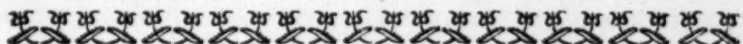
The authors who treat of agriculture, particularly those who treat of the planting woods or forests for profit, or of planting trees in other forms for pleasure, are often mistaken in their thoughts on this subject. Many of them direct to take care of the tops of young plants, in order to have a great forest of trees in good order. This advice may be good in particular cases; but it is generally true, and I can assure my readers, from many repeated experiments, that there is no method so certain to make trees have strong, lively, and straight stems, as to cut them once or twice, if required, down to the ground, as has been directed; and I have often examined the stems of trees which have been raised from seeds, with the greatest care, and found that they have never been so strong, so healthy, and so vigorous, as stems of the trees that have been cut down upon the appearance of the failure of their growth, and which have afterwards sprung from the root with great vigour; and nothing is more conducive to recover trees, whose stems have suffered by frost, or any other accident, than to cut them down in the manner above prescribed.

Before I enter into a detail of the culture of particular trees, permit me to give a few necessary remarks on the culture of some, and the best method of sowing them. The Oak and the Beech may be sown in places quite uncultivated, with success; the Oak particularly. The Beech delights in a light soil; for if it is sown in clay, or where the ground is very stiff, the seeds cannot germinate, and very frequently it sends up its radical above the young stems, which loses them altogether. But the Oak may be sown almost in any soil, having strength enough to send down its radical any where; but most other trees should be sown in nurseries, from whence they may be transplanted out for good, when they are two or three years old.

You must shun as much as possible to plant Oaks in the neighbourhood of Pines, Firs, or Beech, or  
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of any other trees which thrust their roots deep into the ground; but you may plant them to advantage near any trees which spread their roots, and do not run far below the surface. You must likewise observe, never to sow woods, but in those seasons when the seeds of trees are very plentiful, and are fully ripened, and then take a particular care that birds, field-mice, and other vermin, do not attack them; for which you must set traps on all occasions, which is the most effectual method to destroy them. You must be no less careful to prevent the intrusion of cattle into your nurseries, or your woods, by planting hedges of Thorn, Poplar, &c. or dead wood hedges. But the best method of any to protect them from the irruption of cattle, is by making ditches, facing them up with stone, and upon the top thereof planting thorn hedges, intermixt here and there with some Hollies, which will still be a greater security to what is planted or sown within.

I proceed now to the culture of particular trees, and begin as follows.



*The Oak.*

THIS monarch of the woods is best raised from its seed, the Acorn. Authors have distinguished these into several sorts, but the most profitable of them here is what we call the *English Oak*; and when these are designed to be planted in woods, the sooner that is done after the seeds are ripe, it is the better; for this purpose it will be requisite that gentlemen in this country have good correspondents in *England*, to send them Acorns as soon as possible after they are ripe; for after they are kept some months out of the ground, they seldom prosper.

There are three different ways of planting them, each of which I shall here take notice of. The first and most profitable is, when they are planted in the  
places

places where they are designed to stand, in woods, in short healthy ground, in the neighbourhood of Junipers, short dwarf Sauches and Ferns, and scantling Whins. There you have little else to do in planting the seeds, than to open the soil with the spade, thrusting the small end down into the earth, four or five inches, turning it round several times to break the mould, and a little of the sod above, to allow the young stem to come up freely. Above this, towards the Winter, you must lay an inch and a half deep of earth, to protect them from the frosts, and when you perceive them coming up in the Spring, and have too little earth above them, give them half an inch more. In this way they may be planted pretty thick, and when they grow up you may weed them as occasion requires; and this may be done a second time, when the trees begin to grow more full, and their heads begin to meet together: these young trees are always of use in country affairs. I am certain from many experiments, that this hardy method of bringing up trees, is best for their future growth; for here they get in all kinds of soils, and if by chance you put them into a better soil than that wherein they were sown, they will thrive the better.

The Acorns should be chosen from such trees as are tall, straight, well thriving, and well growing. Those of Polard trees should always be rejected; by Polard trees, I mean such as are crooked and small, and are fit only for small country uses; those, tho' they produce most Acorns, are not to be chosen for seed. You will have in your plantations abundance of these Polards, although you do not sow their seeds; for in large woods it is impossible that every tree should be in a thriving condition.

In *March* or *April*, after you have planted your Acorns, you will observe them to peep above the surface; then look that the seed be well covered, and if it is not, give them a little more earth. Your plants that year will probably make considerable progress; if so, you may leave them to nature. The  
 . second

second year you must look to them, and if they are still thriving, it is a certain sign they are rooting well. Towards the end of that year, if you think you have planted your oaks too thick, you should thin them, taking out many of the intermediate plants from those you design should remain; which plants, so lifted, should be immediately replanted in such other places and soils you intend they should continue; for if the roots become dry, it will be a great chance if they prosper afterwards; and if you intend to send them to any distance, be sure to lift them with as much earth about their roots as you can, tying wet moss about them to keep them moist. This second year you are also to observe if your Oaks come up forked, that is, with two stems; when that is the case, you must entirely cut off the weakest. The third year of their growth, you are to observe them very strictly, and if you see their stems knot, and a light coloured mossy scab come upon them, you may be assured your trees are not thriving; therefore I would advise you in the *March* after to cut them close down to the ground; this, as I have said in the introduction to the work, will send the force of their sap down to the root, and make it establish itself in the soil, so as to send up a healthful shoot afterwards.

I do not follow those authors, who direct Oaks to be planted at considerable distances; for I am certain, that when trees are planted moderately thick, they grow better than when the distance is greater; one shelters another, and bids defiance to all bad weather, to the encouragement of the woods. 'Tis true many luxuriant plants out-grow their neighbours, and by their spreading boughs may destroy the weaker plants; but these may be taken out at discretion, and the evil thereby speedily be prevented. I would therefore never chuse when I plant Acorns, to have them more than four foot plant from plant. It is indeed true, that in the great oak forests in *England*, we observe, that the greatest trees there, are at the greatest distances from one another; but I can never believe, that the  
Acorns

Acorns of those trees were set at such distances, and no intermediate plants betwixt them. Those monstrous products of nature have either quite destroyed their nearest neighbours, who durst not contend with them, or the small ones have been taken away on purpose, to make room for the great.

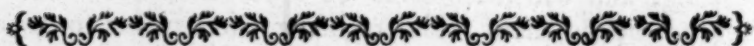
If you design to plant them in the wood way, in grounds where cattle do not feed, the grass which grows therein will become too rank for your tender shoots, and will twist about them, and prove of very bad consequence. A twelvemonth therefore, before you plant your Acorns in such grounds, you are to dig pits two feet square, and two feet and an half deep, laying up the soil to the Summer's sun and the Winter's cold, to mould. In *October* or *November* following, whenever your Acorns arrive, plant them into these pits two inches deep; take away all weeds from them, and the grass that grows within the pit, and the plants will come up in *March* or *April* following. Such grass as remains without the verge of the pits, will be of great use, in giving shelter to the young trees, after they come up, and cannot twine about them. This second method of planting young Oaks, in the places where they are to remain, has had wonderful success with me: Besides, I observed there was less occasion for cutting trees planted in this manner, than in that which I formerly proposed; and I advise the possessors of all grounds where ploughs cannot go, to plant Acorns in either of these two methods they think most convenient.

The third and last method of planting Acorns, is by spading and ploughing the whole ground, and sowing the Acorns with a drill plough. This method pleases a great many people, but it is not so natural as the two methods I formerly proposed. It is true, indeed, you can draw them and thin them; but this work must be done with great caution. The good proposed in planting them in the two first methods, especially in grounds where there is not much shelter, is, that being planted moderately thick, they may  
cover

cover one another from the severities of the weather. As your plants will probably come up very thick, you must, during the second year, weed in such a manner, that the plants may be three fathom from each other, and four feet row from row. Those which you take out now may be planted in avenues and vistas for pleasure. Four or five years after this, you may again thin them to a greater distance; what you take out will sell for Polards; and you may continue thinning them at different times in this manner, until you leave your Oaks twenty, twenty-five, and thirty feet distant, when your plants will become respectable, stately and strong, and will themselves be able to subdue whatever is below them. But to bring these plants to this noble state, you must observe a few things, particularly, That during the first twelve or fourteen years of their growth, you suffer no cattle to brouze among them till they are five and twenty years old: That by all proper means you encourage them to grow tall and straight, permitting none of them to fork: That in the Autumn, when their leaves begin to fall, or in Spring, before they begin to bud, you take off many, but not all their side branches, except you perceive the laterals become too luxuriant, and run away with the sap that should go to the top of the trees: And, lastly, before you make your plantation, that you inclose the ground with hedges or rows of trees ten deep, or more as you think convenient, to protect the young trees from the injuries of the weather.

The uses of this tree are so commonly known, when it is fit for the ax, that it is needless here to repeat them: but there is one particular which deserves your utmost attention, which is, that you never cut down these, or any trees, in the Summer time, when the sap is flowing: for the timber of the trees that are cut at that time, will never be so fit for any purpose as these trees that are cut in Winter, when the sap is at rest. This is an unerring rule, which you must constantly pursue. Those persons who deal in Oak-bark object much to this, that they cannot get  
the

the bark so easily off their trees in Winter as in Summer. 'Tis true it is so, and their objection against felling trees in Winter is very just; and it is equally certain, that the bark taken from these trees in Summer gives a much higher price than that taken off in Winter: but to please the bark merchant, you have no more to do, but, the Summer before you intend to cut your Oaks, peel off the bark from the trunk of the tree, and suffer the tree to remain uncut until Winter, which will do it no harm, though the bark be taken off, nay, though it were to stand for two years afterwards.

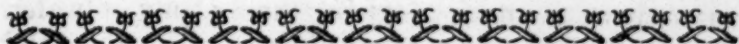


*The Beech.*

**T**HIS tree is propagated from seed, which is called Beech-mast, and it may be sown any time from *October* till *February*. The mice are so fond of it, that it is with great difficulty it can be preserved from them: the best method I have found to prevent the vermin from injuring the seed of this tree, is to sow a good deal of soot with it, the taste of which they abhor; and by this means your seeds will be preserved. It delights in a rich loamy soil, where it will prosper wonderfully. It will prosper likewise upon the declivity of chalky or gravelly hills, particularly if they are dry; but if you plant it in wet or clayish grounds, it never will become a tree; there it grows crooked, wind-waves, cankers and decays: but in the soils I formerly mentioned, it grows to great perfection. When you design to plant them out from the nurseries, you should chuse a spot of ground to plant them in, much of the same nature with that wherein they were raised, otherwise both your expectation and labour will be lost. They have a leaf of a fine green colour in Summer, and all Winter their leaves remain upon them, and become of a handsome red colour; so that when they are planted near

near firs, they entertain the eye with a very beautiful variety. When you transplant them from the nursery beds into the places where they are to remain, take particular care not to over-prune their roots, and be also careful not to plant them deep, which, in making all plantations from nurseries, you should particularly have regard to; for there are more trees lost by being deep planted, than by any bad management I know; and I rather would be obliged to bulk up my trees with earth about the roots, than run the risk of planting them too deep.

The Beech requires almost the same culture and management with the Oak, with this essential difference, however, that though the Oak will thrive almost in any soil, this will not prosper in any but those I have above directed. It makes pretty hedges in large wilderness quarters, and may be kept in a regular figure, if it is clipped twice a year. Its timber is of great use to turners, and for making chairs; and the Mast, when you have great plenty of it, is excellent for feeding of swine or deer.



### *The Elm.*

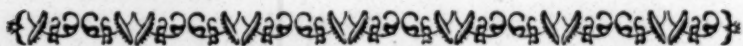
OF this tree there are several kinds, but I shall first treat of what is called the *Scots Elm*, of which there are many of great magnitude and great value. This is what Mr. *Miller* in his dictionary calls the *Witch Elm*; and I agree with Mr. *Evelyn*, who thinks it the *Atim* of the ancients. This sort of Elm is propagated by seed, of which they produce, in favourable seasons, a great crop. The seeds are ripe about the second week of *June*, and must immediately after be sown; for they will not prosper if they are kept long out of the ground. To perform this in the best manner, you should trench a piece of ground in *March* preceding, conform to the quantity of seeds you intend to sow, in a shaded place of the garden, where I observe

observe they grow better than when the ground is much exposed to the sun : observe, however, that the soil be a good free loam, otherwise I assure you, from experience, they will not thrive well. As soon as your seeds are ready for sowing, rake the ground fine, then take off a good cussing, and water your ground below, upon which sow your seeds ; this will make them germinate quickly ; and in case you have many beds to sow, the moisture of the earth will keep the seeds from blowing off, until you have covered your whole beds ; afterwards draw on the earth with a rake, and drill them over with a short tooth'd rake ; keep them clear from weeds ; and if the weather is extremely parching, you must water them. When they are about half an inch grown up, it will be proper to riddle on a little earth above them ; this will keep them fixed in the ground, and prevent the frost from throwing them out of it the subsequent Winter ; during which time if the frost is very severe, you may cover them with pease haulm, which will give great protection to your plants : and in Summer, if there be any drought, nothing will preserve them so much as giving them plenty of water. During the first two years of their growth, you must keep them very free from weeds. About the end of the second year they will be fit to transplant into the nursery, where they may continue for four years, until you plant them out where they are to remain. In doing of this, you must be very careful not to bruise their tender roots ; and that the pits into which you are to set them, have been dug a twelvemonth before you set in your trees, that the earth may be moulded with the sun and air ; and likewise take care not to plant them deeper than they were when set into your nursery : but, above all, be sure that the ground is good upon which they are planted, otherwise they will make a very indifferent figure, become mossy in their skins, hide-bound, and go off altogether ; and cutting them down, which is a remedy for most hide-bound trees, will do them no service ; whereas, if they

they are planted in a good rich mellow loam, they will thrive exceedingly. Some years after they are planted, to enliven their growth, you should dig the ground about them, lay on a little well rotted dung, and sow Turnips and plant Cabbages. I have found this culture add so much to their strength, that in twenty years, after being so used, they have been fit for cutting down, and appeared like trees forty years old.

If, notwithstanding all your care, you perceive that your trees do not grow to your wish, I have used a method, which has had an excellent effect upon them; that is, early in the Spring, whenever you perceive your trees are hide-bound, take a garden knife, and within two feet of the top of the tree to within a foot of the ground, make a large rut with the point of the knife, in a straight line; and do the same likewise upon the opposite side of the tree. At the rising of the sap your trees will bleed a little, whereby they will be relieved from their disease. I have cured trees of this disease which have been ten or twelve years planted where they were to remain; for bleeding often gives vegetables the same relief as it does to animal bodies. When they are cut down, there is no tree excels them for making chairs; the way to use them for that purpose is thus: Cut down the trees in *October*, bark them, and hew them out in what fashion you think most proper for your purpose; lay these logs in running water, but not in ponds or ditches, where the water stagnates; secure them from being carried off by the stream, and let them remain here until the end of *March*; then take them out of the water, lay them in some airy place to dry, but not near a fire; in the Summer after they will work with the carpenter very well, and by the different colours of their veins will appear extremely beautiful. There are some persons who lay them only six weeks in water, and then take them out for use; but you may try both ways, and take that which suits best.

The other sorts of Elms seldom or never bear seed ; these you must propagate by layers, which is thus performed, plant in your nursery the old stump or roots of those trees which have been cut down, leaving a small portion thereof above the ground, from whence will proceed a vast number of small shoots, which should be laid down, and covered with a good portion of earth during the Winter, in the Spring, such layers may be taken from their mother plant a year after they are laid down, and then be put into the nursery, from whence, in four years after, they may be transplanted out into such places where they are to remain, observing always that the ground where they are to remain, be a good, free, rich loam ; and I always chuse to propagate from layers, rather than from suckers, for these I am sure never produce good trees. Having given you directions how to make hedges of the Elm, I now proceed to the culture of another tree, which makes very fine hedges, especially in large wilderness quarters.



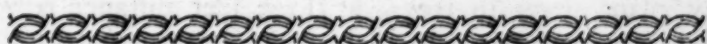
*The Hornbeam.*

**T**HIS tree is sometimes raised from the seed ; but as it seldom produces much seed in this country, it is better and more expeditiously raised by layers. Lay them down in Autumn, and the Autumn following, when they will be fit to take off, plant them in a nursery, the ground of which being well dug. They may remain here for two or three years, to acquire strength, before they are planted out where they are to remain. If you design to plant them in hedge rows, you should encourage all the lateral branches to grow, for this feathering of their branches will soon make a hedge. If, on the other hand, you design to plant them out for variety in your woods, you must treat them with respect to the pruning of their branches, as I have directed for other trees.

There

There is one sort of tree called the Hop Hornbeam, which I prefer to the common sort, for making hedges, because its leaves come entirely off the end of Autumn, and there is not that litter of leaves continually about its roots, as is the case with the common Hornbeam.

There are four or five different kinds of this tree, but as the Hop kind and the common sort are most used, it is needless to mention the rest.



*The Ash.*

**T**HERE are six different kinds of this tree ; but I shall here treat only of those which grow well. The common Ash is propagated only by seeds, called Ashen-keys. This seed should be gathered when the leaves drop, in a dry day, and laid up in a heap to sweat ; this is a great advantage to their vegetation ; for I have often observed, that the seeds used this way have sprung the first season, when the other seeds, which have been kept dry in lofts, did not spring till the second year after they have been sown. The ground in which you design to sow them, should, the preceding Summer, be turned, and made very fine ; and you may take a crop of Turnips from it, which also will help to open it, and they will be off time enough for you to sow your seeds. In the month of *November*, sow these beds very thick with the seeds, and the following Spring and Summer keep them clear from weeds ; and if the weather is very dry, water them, even although your plants are not come above the ground. Next Spring they will appear, and in Summer it will be proper to prepare nursery beds for them, in a piece of good rich ground ; for they must stand no longer than the following Autumn ; because if they grow well, being thick sown, they soon would choak one another. Your nursery must be of the same kind of ground with that wherein they were

sown; for it is certain this tree thrives best in good ground, though it will grow almost in any soil. When you are to transplant them, before you draw them, you must loosen them with the spade; for as they emit a strong radical deep into the ground, they would be in hazard of breaking, if they were not thus loosened. When you have taken them up, you may shorten the strong radical, or top roots; but be very sparing in pruning their lateral fibres. After their removal, you may plant them in rows, at three feet distance row from row, and two feet plant from plant, thrusting down the earth to their roots. In Summer they must be kept quite free from weeds; and the year after they are planted, if the weather is very parching, you must give them water, which will promote their growth, observing particularly to take off all side branches from them. This is contrary to the rule I have laid down in pruning other trees; the reason is, that as the Ash sucks very much, and when young is very full of pores, it thereby imbibes sufficiently to support its stock, and maintain its trunk, without the help of its lateral branches: But in taking these off, you must observe to do it late in Autumn, and early in the Spring, otherwise your trees will bleed, and suffer much. In this nursery they may remain three years, and then you must think of planting them out where they are to remain. In this particular many people differ. In treating of woods some affirm, that every fourth or fifth tree in the wood should be an Ash: What they mean by this, is hard to say; for I am certain, that no tree will thrive under the drop of the Ash, nor even in its neighbourhood, because it is so strong a sucker, that it exhausts all the nourishment round it; for these reasons, therefore, it was my constant practice to plant out those trees from the nursery, into large woods or plantations, into the best ground I could chuse for them, and all by themselves, at ten square feet distance; and after they have been planted two years, you can easily perceive, by their growth, what  
are

are thriving and what are not, what are straight and what are crooked. The sickly and crooked ones should be cut over, to within half a foot of the ground early in the Spring, which will induce them to shoot out noble straight stems; for no tree whatever agrees better with being cut down than the Ash. By this culture the straight thriving Ash tree will mount up to a great height, and add beauty to the forest, while the weaker plants form a kind of underwood, which cuts every eight or ten years, for arbour, hop, and espalier poles, and for hoops, to the great profit of the owners of such plantations.

The *Carolina* Ash, with the Flat-key, together with the *Calabrian* round-leaved Ash, commonly called the Manna Ash Tree, are equally hardy with the common Ash, and will grow very well in this country, provided they have a little shelter when they are young.



#### *The Plane.*

THIS, in *England*, goes by the name of the Sica-  
more, though I cannot think it the same that of  
old went under that name. But leaving this to be dis-  
cussed by botanists, I proceed to its culture, which  
is much the same with that of the Ash tree. The  
keys or seeds of it must be sown about the end of  
Autumn; for if they are kept till the Spring, they  
feldom or never vegetate. When the seeds come up,  
and are too thick, you should draw out part of  
them, and thin your seed beds, which will make  
what remains grow the better. From the seed beds  
you may transplant them into the nursery, giving  
them plenty of room; and from thence, three years  
after, you may transplant them into the places where  
they are to remain. They are not planted out in  
woods, as most other trees, but they are excellent  
to be planted for defence of large plantations, or large  
nurseries,

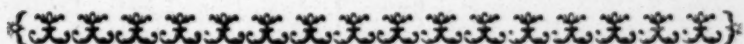
nurseries, and gentlemens seats, for which use I think they have been the favourite trees of our ancestors. It differs in nothing from the Ash, but that it comes up the first year after the seeds are sown, if they are put into the ground early in the Autumn, or whenever its seeds are ripe. This tree is far superior to the Beech, for all the uses of the turner, particularly for dishes, trenchers, and bowls; and when it abounds with knots, as it frequently does, it is used by the joiners for inlaying. I have also seen rooms lined with it; the trees indeed were very large, and had no knots in them; and when it was varnished had a very elegant appearance. When it is used in this way, both sides of the panelling ought to be varnished, because it is very susceptible of being eaten with worms.

This tree being near a-kin to the Mapple, I shall here likewise treat of it; but before I begin, I shall just enumerate the different kinds of Plane, of which there are three other kinds I have not yet noticed, to wit; the true Oriental Plane, the Oriental Plane with the Mapple Leaf, and the Occidental or *Virginian* Plane. The Orientals are propagated either from seeds or by layers. The first method I should chuse, though the latter will also succeed, but will never make such large trees. The *Virginian* or Occidental Plane, which nearest of kin to the *Acer majus*, *falso multis platanus*, will grow extremely well by cuttings planted in the month of *October*, and I have seen very large posts of them sharpened at the end for the strongest supporters of espaliers, and continue longer when put in the ground in good plight, than any timber I see used for that purpose.

*The Mapple.*

THE seeds of this tree, being sown in great nurseries, have often produced plants with striped leaves, and have retained their variegation very well, which is not common in other variegated plants, except the *Lotus* or Birds Trefoil, the seeds of which, when gathered from variegated plants, come up always variegated.

We have two sorts of the flowering *Virginian Acers*, but that sort, with the largest red flowers about the branches is preferable, chiefly for the multiplicity of its flowers. The *Norway Mapple* grows to a very large tree in this country, and is raised by seeds, which it affords in great quantities, and requires the same culture with the common Mapple, falsely called the Plane Tree, and is very proper for inclosing plantations of young trees, or for sheltering gentlemens seats from the high winds

*The Chesnut.*

THIS is one of the largest and prettiest trees, when rightly managed, that grows. In *Britain* it arrives at a vast bulk, especially the southern parts thereof, as well as the Oak, which appears from the many large logs of both these timbers that have been found in many buildings in *London*, from *Henry the 11d's* time, till within these fifty years past. And in the northern parts of *Britain*, near *Edinburgh*, I have seen the wooden parts of the roofs of stables and cow-houses, where, by the breath of the cattle, other woods have been rotted, those roofs made of Chesnut tree have remained sound for above fifty years. Those trees, therefore, when properly planted in our woods,

cannot fail to be of very great use and profit to the owners. Suffer me, therefore, to be somewhat particular upon the culture of this tree. As soon as you design to plant the nuts, you are to distinguish between what you are to plant in your woods, and what you are to plant out for pleasure in avenues, or for bearing fruit. They require a very different culture, and you must take a resolution before you plant them, which of the different methods you intend, so as not to confound the one with the other. I shall begin with giving you directions concerning those which are to be planted in woods for profit. The proper choice of seeds, is an article of greater importance than what many persons imagine ; but as upon this depends your success, it will be necessary to attend carefully to it.

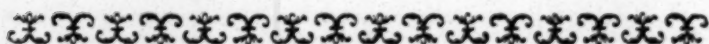
We annually receive these nuts from *Spain, Portugal* and *France* ; and we also have them from *England*. The question is, whether we should plant what comes from Southern climates, or the Nuts which we receive from *England*, in our woods ? One would naturally think, that the nuts which grow here would be more proper to plant out in woods, where they would most probably meet with rougher treatment and harder weather than those trees which are planted near a gentleman's seat, or in a well fenced inclosure. But experience, the mother of all sciences, teaches us rather to chuse those Nuts which come from *Spain* and *Portugal*, provided they are large, fair, and well ripened in the woods. Those Nuts being larger by half than what we receive from *England*, consequently the tree must be larger also, and the stouter the tree, the better able it will be to bear hardships. A twelve-month before you intend to plant, make choice of the best fenced ground, and best soil in your woods ; dig pits a foot and an half in diameter, two feet deep ; lay up the soil from thence to mould and mellow by the sun and air ; and observe, that your pits be eight feet distant from one another. In these pits plant all your good Nuts, two inches deep. The good nuts you can distinguish

distinguish from the bad, by putting them into water : cast away what swims, but what sinks you are to use. In the Spring following, you will observe them coming up ; if the weather is very severe, you may lay an inch more of mould above them. The Summer following you should take care to keep them free from all weeds, and stir the mould a little about them ; and remember that their future success depends much upon the care you take in keeping cattle from their plantations. Early in the Spring you should divest them of lateral branches, or if they come up forked, you should take away one of their branches, and leave the other for the wood. In two years you will easily observe if they are thriving ; if you find that they canker, and a moss grows about them, cut their shoot down at the first bud above the ground, in a sloping manner, and from that bud, they will soon set up another handsome shoot ; for their radicle has sufficient strength to establish itself in the ground, and thereby to recover the plant ; and you are to take particular care not to allow any grass or weeds to twist about the young plants.

The other method of planting them is in rows. From the seed beds, where they are first raised, they are, as usual, to be transplanted into the nursery. At lifting them, you are to take care to cut a part of the top root off, especially when they are again to be removed into the places where they are to remain. They delight in a rich soil, but not in clay, and must be removed from the nursery-beds in two years, or three at most, according to their growth. If you perceive that they do not thrive, but turn crooked, you must cut them down, as I formerly directed, and they will send up a handsome shoot. The trees planted out in this way, will bear fruit sooner than these trees which you planted in your woods ; by the taking off their top root, which makes their lateral fibres spread along the ground within the influence of the sun and of showers, which are the chief principles of vegetation.

The

The Horse-Chestnut, one of the noblest trees that adorns our woods for beauty, must be treated in the same manner; and the Pavia, or red flowering Horse-Chestnut, which makes one of the most beautiful flowering trees that adorns our gardens, may also be cultivated in the same way; but for the first four years of its growth, should have more shelter given it, in Winter especially: Only you are to observe, that such Chestnut-trees as you are to plant out for bearing fruit, should not have their side branches so lopped off as these trees which are planted in woods for timber.



*The Walnut.*

THOSE trees which are planted in your woods, should be sown in the places where they are to remain, and from thence never removed; for if their roots, which always tend downwards, are broken, cut or bruised, it hinders the tree from aspiring,, which is the greatest beauty in trees planted for timber. Indeed they will not be so fruitful as trees that are transplanted; but the risk of the operation greatly out-balances any advantage that may accrue from it. In woods these trees should be planted at twelve or thirteen feet distance; for their vicinity to one another greatly promotes their growth. I would here advise to plant some of the black *Virginian* Walnuts, which come now in great plenty from that country; for these naturally grow erect: but take care, that neither the common nor the *Virginian* Walnut fork when they come up; for no tree is more liable to do so than the Walnut: and I always would chuse to plant them by themselves in a well sheltered situation, in every respect treating them as I directed for the Chestnut. The wood of the black *Virginian* Walnut is invaluable; for the beautiful enamelling of its veins,  
when

when it comes to be cut, it rather seems to resemble marble than wood.

They delight in a rich firm loam, and they will also grow upon the declivities of chalky hills, or stony ground. It is very remarkable in this tree, that the more uncultivated the soil is, the more beautiful is their wood, and better for the cabinet-maker's use than what grows in a richer soil.

If you design to plant Walnut trees for fruiting, they must be sown in beds. Two years after, they must be transplanted into the nursery; when they have grown two years more, they will be fit to plant out into the places where they are to remain, and to be treated in the same manner as I directed for the Chesnut; with this peculiar difference, however, that you are to plant the Walnuts no less than twenty-five or thirty feet distant one from another, for the sake of their fruits and the extending of their branches; for it is very observable, that when Walnut trees are planted for fruiting, and have been frequently transplanted, and their radicle or top root lopt a little, that not one in a thousand of them grows erect in its stem, but disperses its branches at a great distance from the trunk of the tree; and the more crooked and pervading these branches are, you are sure of the larger crops of fruit. I next proceed to treat of a very beautiful tree.

*The Quickbeam,*

or

*Roane Berry Tree.*

THIS tree, for its beautiful flowers in *May*, and its very handsome scarlet fruit in Autumn, yields in beauty to no tree I know, especially if we consider the vast erect stature to which in a short time it attains. This, together with its resisting all the inclemencies of our climate, thriving where few other trees will prosper, makes it deserve our utmost care and culture to propagate it. It is of the *Sorbus* tree kind, and is botanically named *Sorbus aucuparia* *Johannis Bobini*. This tree delights in a moist loose soil, and may be easily propagated from the berries, which it produces in great quantities: these, after picking away the pulp from about them, may be sown in *November* or *March*, where they may continue two years; and afterwards be transplanted out into the places where they are to remain for good. As I said before, they grow upon any soil, but prosper best where the ground is wrought most about them. The uses of this tree are many: I have often seen good walking canes made of its boughs; and the wheelwright and husbandman apply it to many uses: in short, I know no tree so capable to make a large garden pretty, by its delicious flowers in the Spring, and its charming scarlet coloured fruit in Autumn; and, when ready for cutting, of such general use.

I shall next proceed to the culture of another tree, which likewise yields very beautiful flowers, and the curious enamel of whose wood, richly deserves the carpenter's nicest care. Was it more generally known, it could not fail to be more esteemed, and consequently more cultivated.

*The*

*The Laburnum,*

or

*Pease-cod Tree.*

**B**OTANICALLY named *Citifus Alpinus latifolius*, *flore ramoso pendulo longiori*, of *Tournefort*. Their flowers are produced in *May* in very long yellow coloured spikes, which are succeeded by long cods like Pease, which include their seeds, and it is from the form of these that the tree receives the name of Pease-cod-tree.

It is propagated from seeds, which are usually sown in *February* or *March*, on a bed of good fresh light earth, covering them with an inch of the same mould; and in six weeks after they will appear above ground. If the whateer be dry, you should water them as occasion requires.

If your trees have grown very tall the first year, you may transplant them into the nursery, planting them in rows three feet distant, and one foot asunder in the rows, laying on the roots of these young plants a good deal of straw in the Winter-time, to protect their fibres from the severities of the frost, and in Summer from the parching rays of the sun. In the nursery, if they like the soil, they will grow very fast, and in two years must be planted out into the places where they are to remain; for if you suffer them to continue longer in the nursery, it will be hard to get them up without injuring their fibres, than which nothing is more injurious to these trees. And here I shall give a very necessary caution for all quick growing trees, that the first year after they rise, they must be transplanted from the seed-bed into the nursery, where they must remain no longer than two years; for if they become very tall before you plant them out into the places where they are to stand, they seldom thrive well.

No tree whatever is more hardy, after it is planted out, than the Pease-cod trees; and if it be planted in ground it delights in, it will grow to a great bigness; some I have sown, grew to such a size, that tea tables have been made of one plank of the wood. The wood is of a bright yellow colour, with blackish purple veins, and far exceeds the prettiest Mahogany I ever saw.



*The Lime.*

THE first seeds of this tree I ever raised, were sent me as a present from a gentleman in *England*. With them I received the following letter of directions how to use them :

“ S I R,

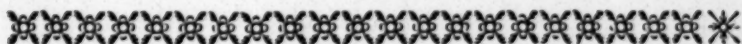
“ I Have sent you half a pound of Lime-tree seeds perfectly ripe, which is pretty extraordinary, as they seldom ripen thoroughly with us. As a great deal depends upon the directions how and when to sow them, I shall give you a few, which I hope you will find useful. No tree is so tender when it is young, as the Lime: after it is sown, it lies twelve months in the ground before the seedlings appear, and rises precisely within four or five days of that day when in the preceding year it was sown: therefore I would advise you to sow the seeds about the twentieth of May, keeping them clear from weeds, and watering the beds in dry weather, even before they come up. In Winter lay a considerable quantity of Wheat-straw upon the beds where you sow them, to protect them from frost, and you will see your seeds come up within two or three days before or after the twentieth of May following. They may remain in the seed-bed two years, and then it will be proper to plant them out in the nursery. Give them plenty of room therein, and let them remain there for four years,  
and

*"and when you plant them out, be sure to give them a rich loam. By following these directions, your trees can scarcely fail of growing to a very great size. Observe one thing particularly, not to plant them deep; for by that error I have lost more plants than any other way."*

Conformable to this direction I managed my trees, and had a good number of the finest plants, raised from seed, I ever saw, far exceeding those raised from layers.

It is remarkable in this tree, that such as you raise from layers will seldom or never produce seeds. Their layers are rooted in twelve months, and may then be planted out into a nursery, where they may stand four years, after which they must be transplanted out into the places where they are to stand, in the same manner as the seedlings above mentioned.

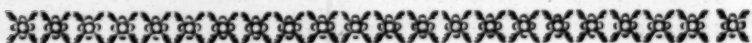
I come now to treat of Aquatic Trees.



*The Alder, or Aller.*

I Have often heard that this tree has been raised from seeds, but I never practised it. My way of raising it was from suckers, which grow in great plenty in these grounds, where the old trees were cut; but though this be my practice, yet I cannot much approve of it, for the suckers are very long before they become fit for any use. Therefore, the best method I know to raise them is: take a middle aged tree, which is twiggy about its sides; cut it in pieces four feet long; sharpen the cuttings at the ends, but do not take away the side twigs from them. In the month of November thrust them into a swampy piece of ground, two feet down, and the year following you will observe them shoot strong. In two years after this, if they produce no more than one shoot upward, cut that down

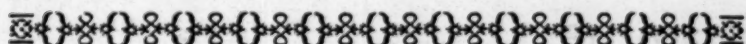
down to within three buds of the place from whence it shot; and next year, and the years following, you will see the stock send out two or three strong shoots; by this means in a short time you may have a whole wood of them. I have likewise seen them propagated by taking up the old roots of the trees which have been cut, together with their fibres; then split the roots, preserving as many of the fibres as you can, and plant them again, and they will send you up a great many noble young shoots.



*The Birch.*

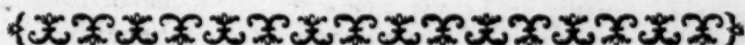
CONTRARY to what Mr. *Evelin* says, and of which Mr. *Philip Millar* takes no notice, I have raised a vast number of these trees from seeds. I bought about four pounds weight, which I sowed in the month of *February*, in a piece of indifferent ground in a nursery in my woods, covering them with a quarter of an inch of mould, for these seeds cannot endure to be much covered. Over this I spread some small cuttings of whins, to preserve the seeds from the birds (who are very fond of them at this season of the year) which, when the plants appeared; I took away. In this nursery they remained two years, and afterwards I transplanted them out into the woods, pretty thick, and took some of them home to make plantations of, near my house, purely for their fragrance; for they emit, after a shower of rain, an oderiferous flavour. In three years after this I observed my plants grow very tall, but at the same time very slender; and these planted in the best ground were the smallest, most crooked, and the most wind-waved; therefore I resolved to cut them down within two inches of the ground, and in about four years after I had the most beautiful plants I ever saw, straight, tall, and strong, and far excelling those which I gathered annually in my woods to make nurseries of. I bought also from  
the

the same person some Fir-feed, but that did not come up, which I attributed to its being kiln dried.



*The Abele Tree.*

IS only propagated from the suckers, of which you may have plenty, by cutting down some of the trees, working the ground about them, and preserving them from cattle. This tree together with the Aspin or Quaking Asp, are produced in the same manner. I am surpris'd how a late author speaks so diminutively of the Quaking Asp. I saw within these ten years a large plantation of these trees near a gentleman's seat in the bishoprick of *Durham*, most of them near forty feet high, without a side branch, which he esteemed very much, and sold for a great price, to the mill-wrights and carpenters about the country.



*Willows.*

OF which there are thirty sorts known to the basket-makers. They are all propagated by cuttings, planted in a moist soil. But there is one particular kind, which excells the whole, called the *Huntingdon Willow*, which comes very soon to be a large tree. These are more properly called Sallows; they grow in rich ground, and, although it is not wet, they will prosper well.

Willows are propagated by short cuttings, but Sallows are propagated from stakes or truncheons, seven feet long, which, when thrust into the ground in *October* or *February*, will thrive exceeding well.

I shall next treat of Evergreen Trees, which are fit to be planted out in woods.

*The Fir.*

COMMONLY called the *Scots Fir*. Most authors who have wrote of this tree, have treated it in such a superficial manner, that they either seem not to value it, or, what I rather believe to be the case, they neither know the tree, nor its culture: I therefore think it my duty to give you my own practice in which I succeeded extremely well.

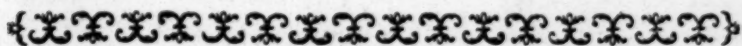
This tree is only propagated from seeds, which are contained in cones or clogs, as they are called, which are ripe or fall from the trees in *December* and *January*, at which time you should gather them, observing always to make use of those cones which fall from the eldest, tallest, straightest and best grown trees you have. There is sometimes a difficulty to get the seeds out of the cones, and if you are not favoured with much sun, which will make these cones burst, it is extremely difficult to bring out the seeds. The method of getting out these seeds which succeeded best with me, was this: In my second stove, where the air was kept up to *temperate*, I spread my mats upon the brick floor, under which there was no heat, the air in the room only being warmed moderately. Upon the mats I laid my clogs, which in about three or four weeks opened, and yielded me plenty of seed. A friend of mine that was present at the operation, objected, that this was very near kiln-drying, which might destroy the seeds; to which I answered that I was not afraid of their being too much dried, as the air in the room was but moderately warm, and there was no heat below them, and that every two days I took out what seeds had burst from the cones; nor was the heat comparable to a kiln, which is warm below, where consequently the seeds must be roasted. The effect was, that when I sowed my seeds they came all up to great perfection, notwithstanding that I had brought them out in this manner from the cones. However, persons that have not the same convenience I had, may  
open

open their cones in the sun, which no doubt is a very good method, and what does not open before they are sown, will burst from the cone in the summer time; and you should keep their seeds in canisters, or leather bags, till next sowing season, in a dry open place, where neither sun-shine nor fire heat can get at them.

About the end of *April* prepare your ground for sowing, by trenching it, and making it fine, taking out all stones, and roots of weeds, or grass. If this be done in *October* preceeding it will still be so much the better; and if you lay it up in ridges after it is so trenched, it will be still of greater service. The ground should be of a middling nature, neither too poor nor too rich, too clayey, nor too sandy. Take off a pretty good cuffing with the rake, and if the ground is very dry, and no rain like to happen, water the beds from a garden pot, with the rose upon it; then sow your seeds pretty thick; draw on the earth, and dress up your beds with a very short toothed rake, and in two or three days after, riddle on an inch of the same earth upon them. Some weeks after you will see them peeping through the ground, and now is the precise time, when your greatest care is required to preserve them; for at their first appearance above ground, they bring up the husk of the seed at their tops, which whenever the birds perceive, they fly greedily to attack them, and picking at the seed husk, they nip off the heads of the young plants, which utterly destroys them. I covered my beds therefore with close wrought nets, supported above the beds with hoops so high, as to be without the reach of the birds bill. This does very well; but there is still a better method, which is to set boys near the beds, from sun-rising till sun-set, giving them pistols to fire, with powder only, which will so frighten the birds, that they will not venture, for some time at least, to come back again. If the weather is very dry, you must water them frequently, which will promote their growth exceedingly, and

when weeds appear, you must take them out carefully, because in the non-age of the plants, they are apt to come out with the weeds. In the beginning of *November* riddle on a good quantity of saw-dust, that has been dried some time, or for want of that, bear or oat chaff, which when laid upon the beds, will prevent the frost from throwing the young plants out of the ground, and in *April* following, weed the beds of the Firs which have the largest growth, and plant them out in the following manner, which, though directly contrary to the opinion of all authors, who have wrote upon the subject, has, with me, always been attended with great success. I am not for planting out the whole of the seedlings at this time, but such only as are very rampant in their growth. At two years old your Firs must be transplanted either into nurseries or inclosed grounds, where they are to remain. This last method I most approve of. The manner of planting is: In the month of *April*, when you intend to take out the rampant growers from your beds, after taking them out, put down the earth with your hand close by the roots of these you leave in the beds; and if you have them to carry to any distance, have some paped earth by you, that is, some well wetted earth, and tie a layer of it round the roots of your seedlings, which otherwise would dry very fast. If you design to make large plantations, it will be necessary to inclose the ground with fail dykes, to prevent the intrusion of cattle, which may be crossed with other fail dykes at right angles, at every three or four acres. If your ground is bare where you intend to plant them, or if it has very short grafs upon it, you have no more to do, but to make a slit with your spade, set in your plant at the distance of about two or three feet, put the root of the plant close to the ground. There is little danger of planting this tree too thick, for the rank growers will destroy such as do not thrive, and the under branches fall off when they run high, whereby they prune themselves, and save you that trouble. If Junipers, or any low grow-  
ing

ing plants are upon the ground, or if the ground where you intend to plant them, is rank with grafs, or tall growing whins, you must plant your seedlings in pits, at a little distance from these under growths, lest they should be choaked or hurt by them; and if you design to plant Oak, Beech, or any other trees amongst them, they should be planted at eight feet distant; for it is almost incredible to think how fast Oaks grow when planted among Firs. I have also planted, with great success, a few of the Cedars of *Lebanon* amongst Firs; but this is not to be done, until the Firs have become pretty large plants, to protect them; observing strictly, however, not to suffer the Firs to drop over them; and betwixt the Cedars and the Firs I planted Oaks, that when the Firs were cut away, the Oak, which is a long lasting tree, might give suitable shelter to the Cedar.



*Of Coppices.*

**T**HUS have I gone through most of the trees that are planted either for pleasure or profit. I shall now conclude the whole by a few observations on the raising of Coppices, or small woods, a work the more necessary, as it is in the power of gentlemen of but very moderate fortunes, whilst the culture of large woods requires both extent of ground and expence in management.

Whenever you intend to make small woods of coppices, you are first to inclose your ground sufficiently, so that no cattle may get in to browes upon your young plants, or amongst them. If there is any natural wood in this inclosed ground, you are not to take it intirely away; nor Junipers, scantling Whins, or other low growing Shrubs; but sow the seeds of your trees near them, in such a manner as that the under-wood may not choak them when your young plants come up. If the grafs is rank, you must pare

the surface of the earth at a little distance round the pits wherein you sow your seeds, that the grass may not twist round the young shoots of your plants which would choak them. I would always advise, rather to sow than plant your woods ; for those trees which are sown, and remain untouched, will in twenty years far outstrip any tree you can plant. Thin your plants when they come to a tolerable height, moderately, but not all at once, for that would let in too much cold air to your plants ; but from delicacy on this point, you must not crowd your plants too much ; for, if too much crowded, for want of a due circulation of air, they will run like may-poles, and turn out good for nothing. Take away all forked shooters, by taking off their stems ; but do not divest your trees of all their side branches, for this would ruin their heads. If your young plants which you sowed, do not thrive after the first three or four years, cut them down, and they will soon after send up good young shoots, which in time will make large trees.

These coppices may be cut every twelve or fourteen years, or may stand longer if you so incline ; but no large wood must feel the weight of the ax, till it is fifty years old.

Before I leave this subject, I cannot but regret the universal neglect that at present prevails, in the article of woods and plantations. Oak-woods, formerly our glory, are now scarce known, though our Acorns and foil are equal, if not superior, to those of former times. What effect this may have on our commercial interest time only can discover. I shall just say, that it is far from being improbable, that necessity at last will oblige us to perform what indolence or false taste at present hinders us from executing.

It is indeed matter of surprise, that a culture of this kind, which in a course of years, is attended with so much profit to the planter, or his successors, should be so greatly neglected in this industrious age. One would imagine that interest, if no other motive could prevail, would have the effect to engage many in  
such

such a pursuit.—But experience shews us quite a different prospect. Present profit, or present pleasure, is the object of every wish ; and there are but few who bestow one thought on the advantages that would accrue to posterity from raising woods and forests. On the contrary, even where such woods are raised, and perhaps in a thriving condition, how often do we see the best trees culled out for some favourable avenue or inclosure ; and even the woods themselves mangled and cut down, and the very best and most promising trees destroyed, to form a vista to some antiquated ruin ; or, to be still more modern, to some *Indian Pagod* or *Chinese Temple*.

The author of this work sympathizes on so woeful a degeneracy. He hopes the few hints he has thrown out, may have some effect to correct a taste so generally destructive. The rules he has laid down, are mostly founded on his own experience ; and he with confidence can promise, that if strictly followed, they can scarce fail of the desired success.



*An Account of the best Method of planting ELM TREES,  
on a cold, stiff, clayey Soil.*

S I R,

I AM much surpris'd to have seen so little on the subject of planting: Some good directions on this head could not fail being very useful to many gentlemen who lead a country life, and have little else to do but to improve their estates, and be useful to their neighbours.

My present intention is to inform you of an experiment I made in the year 1737, of planting some *Elms* on a stiff clay, a soil which is, in general, in this country, thought not so well to suit them as others of a lighter and drier nature.

My first business in this grand affair was to lay a plan of operations: accordingly, I marked out the ground, driving a small stake in the spot where every tree was to be planted.

As soon as harvest was over, I hired some labourers, and made them dig a hole six feet square, and four feet deep, wherever they found a stake, throwing the earth which came out of the hole round its edges.

When this work was done, I let it lie in the above state all that winter and the ensuing summer, with an intent that the stiff obstinate nature of the clay should be meliorated by the powerful influences of the frosts, sun, and variable air.

At the end of the summer of 1738, I found I had not lost my labour, when I came to examine the state of my experiment. The nature of the soil, wherever the air could operate upon it, was entirely changed, the clay being much less compact, and approaching nearer to the substance of a stiff loam, being crumbly, though close in its texture.

As soon as I found that my land was thus in proper order for planting, I procured from an honest nurseryman, a sufficient number of young *Elm* trees, ordering him to mark the north side of every one of them, with some white paint, previous to his taking them up.

This

This was a precaution some might think unnecessary; but my reason for doing it was, because I imagined that a tree, removed from its native spot, and transplanted into another place, must thrive better if, on being removed, it enjoyed the same aspects as before; and indeed some small experiments I had before made in this matter seemed to confirm me in the opinion.

As soon as I had bespoke my trees, I employed some labourers to fill up the holes above-mentioned with the earth that came out of them; but I first sprinkled some flaked lime over the bottom of each hole, and mixed lime with the earth as it was thrown in, to the quantity of a bushel for each hole.

When this work was done, and the ground appeared level, with a little spare earth near each hole, I had my trees planted in the following manner:

I began planting my trees about the tenth day of October, and had finished by the latter end of the month.

I caused, in the first place, the roots to be moderately trimmed with a very sharp knife, each root being cut sloping, not transversely, the slope being undermost or next the ground: this was, in some measure, essential to prevent the moisture proceeding from rain from soaking into the wounded part.

Having proceeded thus far, I caused a tree to be set over each hole, upon the surface of the ground, round the roots of which some under-turf earth was piled, and over that the remainder of the natural soil, with which some flaked lime had been mixed.

The upper part of the little hillock, formed round the roots of the tree, was made a little hollow, to convey to the plant as much rain as would be necessary to supply it with a sufficient quantity of moisture.

I then employed the parish-sexton to secure the little mound with brambles, wattled in the same manner as are the graves in a country church-yard; my last business being to apply some long stakes to each tree, by way of supporting it, till it had taken firm root.

In

In this manner, then, I planted the whole number of my trees; and they succeeded to a wonder, for but ten failed; and the bark of these was, on examination, found to have been injured by an afs, which broke into my ground: however, the next year I had them replaced, and the disadvantage was not great.

What is most remarkable is, that my trees stood well the memorable hard frost, without being, as far as I could find, in the least injured.

I well knew, that the only way to defend the roots of my young trees from the damp, raw, under-earth, which had proved fatal to other plantations, was to raise them above it: this I effected, by planting them on the surface of the soil; and such roots as struck downwards found a good warm bed in the earth, which had been stirred and mixed with lime: however, as the *Elm* has naturally a spreading root, the nourishment was chiefly extracted from the upper bed of earth, the main roots being covered by only a few inches of mould and some of them, at this time, lie quite bare and prominent above the earth.

A great deal depends on staking young trees so securely that they shall not be shaken by every gust of wind, in such a manner as to displace their roots in the earth; for by this means the fibres of the roots of such shaken trees are removed from the surfaces which should afford them nourishment; and either the tree dies, or the mouths of the roots must again have time so to adapt themselves to the circumjacent particles of earth, as to be in a capacity of once more extracting their nourishment and food from their common mother.

I am yours, &c.

*Essex, Nov. 12, 1764.*

X. Z.

THE



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